

THE

Desert

M A G A Z I N E

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only.

MAY, 1943

25 CENTS



Desert Abode

By WILLARD LUCE
Blanding, Utah

Winner of first prize in Desert Magazine's March photographic contest is a photograph of a Navajo mother and children at their hogan home. Taken with a Ciroflex camera, 1/50 sec., f:16. Panatomic X film.

Utah Landscape

By L. Ph. BOLANDER, Jr.
San Francisco, California

Second prize winner in the monthly amateur contest shows one of the unusual butte formations east of Bryce canyon, Utah. Taken with a Rollicord camera. Eastman XX film.

THE DESERT MAGAZINE

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DESERT Close-Ups

• Claire Meyer Proctor, who took the photograph of the Night-Blooming Cereus for this month's cover, shares her hobby of "knowing and living with the Southwest" with her husband, R. C. Proctor, Phoenix dentist. Their major project is to make a photographic survey of the entire state of Arizona. They have built a picturesque pueblo style home in Phoenix and have turned the grounds into a typical desert.

• Sgt. George Bradt, who tells DESERT readers this month about his unique experience in training a hawk, will soon describe some of the desert rodents which he has studied and photographed.

• Congratulations to Lieut. Hulbert Burroughs, former DESERT writer, who recently was commissioned in the Western war zone. A late issue of the Air Force Magazine carried one of his articles. Hulbert enlisted in the army in January, 1942, and has been doing special photographic work, based in the Hawaiian Islands.

• Cpl. Rand Henderson, who left DESERT staff to enlist in the U. S. marine corps, is now attached to the Amphibian Tank Battalion, Oceanside, California. He has been doing advanced work in the signal battalion of the radio division. His training was received in Utah, at Treasure Island and San Diego.

• Last month Marshal South told about the beginnings of their printing press, but he did not tell about one of the "publishing" phases of the South family which we have just discovered. In limited number they are turning out beautifully designed and executed desert cards, hand-blocked and hand-painted watercolor. The imprint bears this legend, "Printed by hand-press in the desert by Marshal, Tanya, Rider, Rudyard and Victoria South." One of these days, when they are again established in a permanent desert home, they probably will produce enough of these cards for all those desert friends who want them as souvenirs or gifts.

WHEN YOU MOVE . . .

We want our DESERT readers to receive every issue of their magazine. But we cannot give them this assurance if we are not notified of a change of address by the fifth of the month. Paper restrictions prevent our supplying duplicate issues to those who have failed to let us know their new address before DESERT is mailed each month. If you are going to move and your address is uncertain, please ask us to HOLD your copies for you until you can furnish an address. We'll be glad to cooperate in every way possible—but henceforth we shall be unable to supply extra copies when we have not received proper notice by the fifth of the month.



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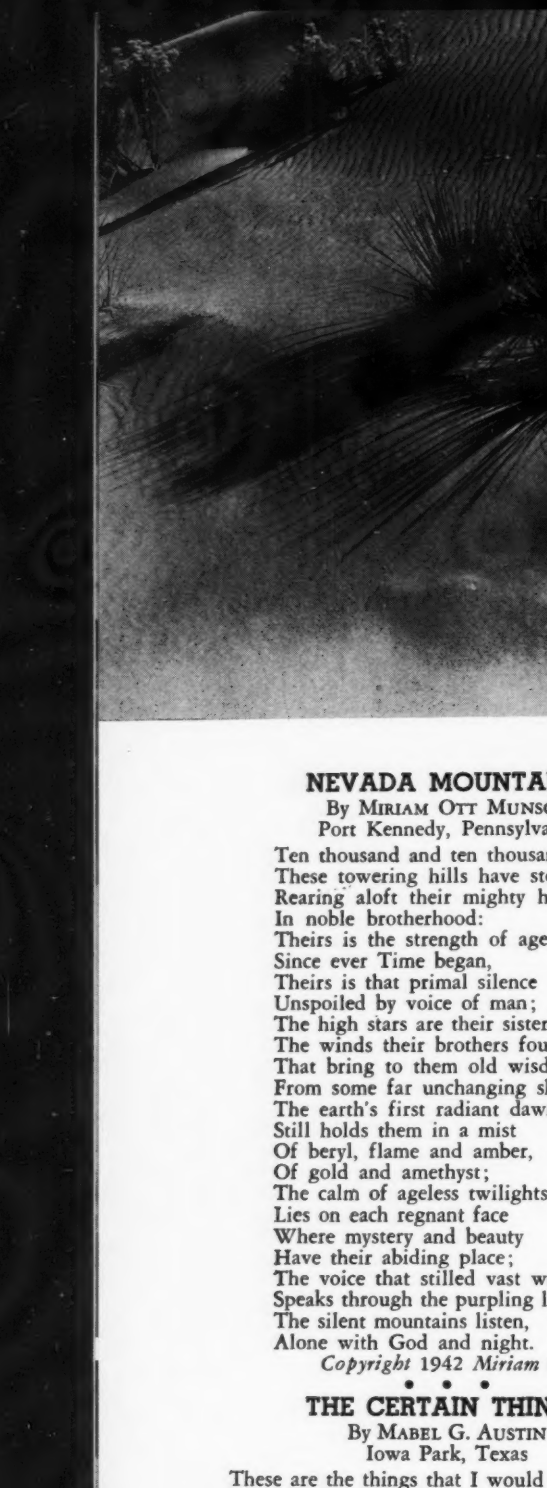
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Life is a Drifting Dune

By BYRON DE BOLT

The rippled sands move forward grain by grain,
To slowly hide a skull and scattered bones;
They creep and shift from where they long have
lain
To bare a cache of opal studded stones;
And drifting on they cover cactus bloom—
The bright is lost within the dry and dull.
The wind reweaves upon her desert loom
And then reveals the whitened bones and skull.

To those who live with suffering is known
That Life uncovers secrets hidden long,
And buries cherished things that we would
own—
Reveals unpleasantness and much of wrong,
But with its evil, good is also shown
To turn our hearts from grief to happy song!

DESERT BLOOM

By ELLA MACK WRAY
San Jose, California

I loved them all—the desert moon,
The Piñon tree, the sandy dune,
But most of all the lovely pink
Of cactus bloom—but just to think,
I said, how soon the flower will sere
And dune and tree will still be here;
Then looking at the desert sky
Beheld the tints float slowly by
And knew the desert cactus proud
Had bloomed for me in rosy cloud.

GHOST FLOWER (*Mohavea confertiflora*)

By MAY EVELYN SKILES
Santa Paula, California

A specter flower bluely white
Blossoming in desert air;
Scarcely seen by day or night,
Phantom flower, do you care?
Do you dread a gorgeous bloom
When you know of loss and doom?
Bones of man and bones of beast . . .
Did you pale at carrion feast?
Ghost flower, who gave you name?
Blooming near the paintbrush flower,
Do you know in these bleak lands
Of buried lives in desert sands?
Ah, ghost flower, still you bloom,
Reaching up above the gloom,
Tinged with blue and not all white,
Your corolla without blight.

DESERT NIGHT

By EVELYN HAWKINS
St. George, Utah

Slowly the sunlight rises from the desert
And lets the purple shadows have their way;
As down among the marching minarets
The twilight plays.

Soon now the night will come
Drink up the purple and the gold,
Wrapping with blackest velvet
The secrets that the desert holds.

The moon, a golden orb in limpid light
Will rise majestically in the sky—
Guard closely this enchanted land
And watch the shadows grow, then die.

The sobbing haunted voice—
The night wind of this magic land
Will play with voices from eternity,
And whisper soft caresses to the sand.

THE DESERT MAGAZINE

NEVADA MOUNTAINS

By MIRIAM OTT MUNSON
Port Kennedy, Pennsylvania

Ten thousand and ten thousand years
These towering hills have stood
Rearing aloft their mighty heads
In noble brotherhood:
Theirs is the strength of ages
Since ever Time began,
Theirs is that primal silence
Unspoiled by voice of man;
The high stars are their sisters,
The winds their brothers four
That bring to them old wisdom
From some far unchanging shore.
The earth's first radiant dawnlight
Still holds them in a mist
Of beryl, flame and amber,
Of gold and amethyst;
The calm of ageless twilights
Lies on each regnant face
Where mystery and beauty
Have their abiding place;
The voice that stilled vast waters
Speaks through the purpling light—
The silent mountains listen,
Alone with God and night.

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THE CERTAIN THINGS

By MABEL G. AUSTIN
Iowa Park, Texas

These are the things that I would not forget—
Exquisite beauty and the crimson flow
That lingers where the golden sun has set
And rimmed the clouds with brilliant afterglow.
These are the things—the certain things—the
sky
So deeply blue and starred with mystery,
The dawns that come and go, the wings that
fly,
The mountain's torrent, flowing toward the sea.
These vast unchanging things I would behold,
Remembering the wonders of them all;
And in surrender harvests will unfold
Their priceless gifts, along the rise and fall
Of man. Eternal gifts, that never pass away—
As lasting for tomorrow, as for today.

SO SIMPLE

By M. M. BURTON
Alhambra, California

Why should I speak of
Mountain peaks and purple mists
And sunlight on the golden sand,
When all I want to say is:
"Ain't the desert grand?"

WAR AND THE DESERT

By DEAN TAYLOR SMITH
Twentynine Palms, California

Where once there was only the call of the quail
There is now the roar of the tanks.
Where once there was only a lizard's trail,
The half-track claws the banks.

Where once the eagle and condor soared
Soft riding the thermals' rise,
In screaming dive comes the man-made bird
Profaning our silent skies.

But the desert is older, a million years,
Than the puny plans of men,
And time and wind heal scars and fears
And quiet will brood again.

NOCTURNE

By GLADYS I. HAMILTON
Mancos, Colorado

The pinyon trees were inky black
Against the silver sky;
The saddle leather creaked a tune;
The stars were faint and high.

The prairie grass swayed in the breeze
That swept across the lea;
The moon played court to the evening star
And you made love to me!

MY PET?

By FRANCES COCHRANE
Parker Dam, California

Scorpy wasn't a desert rat, he wasn't a dog, nor
was he a cat
He didn't have wings and he didn't have fur
He couldn't bark and he couldn't purr.
Scorpy showed up most everywhere, he was
under the bed
He was under each chair.
He hid in the pans in the kitchen sink, he was
in the
Water we had to drink.
Scorpy carried a poison dart, he could give a
sting that would
Burn and smart
He tormented others in having his fun, for
Scorpy was
Really a scorpion.

CREED OF THE DESERT

By JUNE LEMERT PAXTON
Yucca Valley, California

Lady moon, with graceful wrist,
Strums the chords on a silver disc
While the old, old story that lovers tell
Is told to the sage by the chaparral.



The Gavilán would stand firmly on my well-gloved fist, clutching it with steely talons.

Winged Hunter of the Desert

The unusual story of how a hawk was trained from babyhood in the ways of a falcon is told here by George Bradt. Taken from his yucca-tree nest northeast of El Paso, Texas, when he was a little ghost-like fledgling Gavilán, as he was christened, received his entire care and training from the young army photographer, whose hobby is training birds in the ancient art of falconry.

By GEORGE McCLELLAN BRADT

EARLY last May, for the fifth consecutive spring, a familiar irresistible desire led my thoughts desertward. I wanted again to experience the in-

describable thrill of seeing high in the desert sky a keen-eyed raptor fold its swift wild wings and dive earthward to return to my gloved fist when I called it.

While the true, mountain-loving falcons would not, I knew, be found nesting on the rolling mesquite and yucca covered desert north and east of El Paso, I did hope to locate the nest of one of the less dashing, but equally expert, buteonine hawks such as the great Red-tail or slender Swainson. And I knew it was only during spring, when young hawks are still in the nest that a bird could be secured for training without the elaborate and time-consuming efforts required to capture an adult.

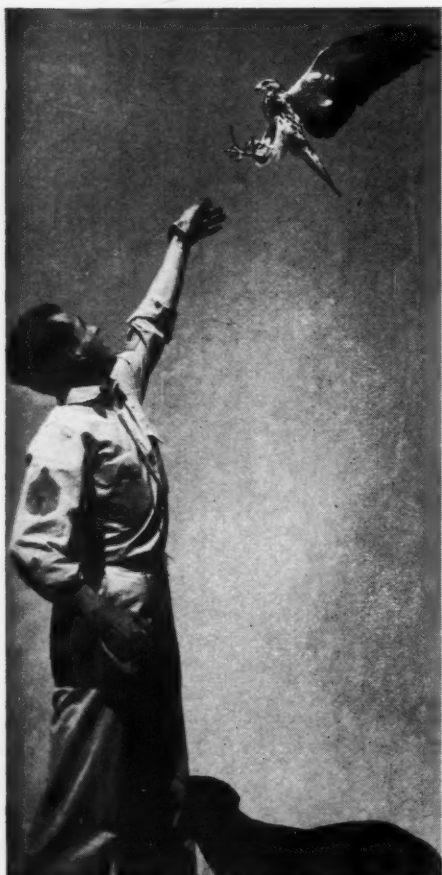
Since the tall tree-yuccas, so abundant

throughout our area, offered the only suitable nesting sites, my wife and I had only to concentrate on these weird growths in our search for nests. Each Sunday we motored over the dusty desert roads investigating every likely-looking yucca we encountered. Our first expedition, while netting us no hawk nests, did bring to light the secret home of a pair of road runners and their black-skinned babies. On our second trip we discovered raven and kingbird eggs, and the fuzzy black young of a mockingbird—but still no hawk nest. Finally, on May 24, we found what we had been seeking so long.

Among the spiky green leaves of a giant yucca we saw the dark outline of a large stick nest. Climbing to the top of a step ladder, we found lying on the nest's rough lining three glossy white eggs. We had discovered the nest of a pair of Swainson hawks. After a quick visual examination of eggs and nest we left to let the adults return to incubate their precious progeny.

On the way home we decided it would be wise to wait at least a month before returning to the nest-yucca to give the eggs time to hatch and the young an opportunity to gain strength and grow some feathers.

Not until July 5 did we revisit our wonderful "find." As we slowly approached the yucca a beautifully marked brown and



I would unsnap leash from jesses and toss him high into the air.



Just before seizing the lure he would spread his tail to break his forward motion.

white adult glided from the nest and alighted on a low mesquite not far distant. The moment it flew off two tiny white downy heads popped over the nest-edge. The eggs had hatched!

We brought up the ladder and climbed it to look down upon the beady-eyed hawklets. They seemed not at all afraid of us. They just sat with their clumsy feet sticking out in front of their fat tummies and stared at us in a bored and disdainful manner. It was almost as if their parents had told them that anything unable to fly was worthy only of their infant, raptorial scorn. But perhaps they were just full of food and sleepy. The presence of a well-picked furry carcass lying beside them indicated that they had but recently been given a lunch of rabbit hash.

The proper time to take a young hawk is after it has acquired a few wing and tail feathers. Except for some black quills in short wings and tail, however, these were covered with the soft greyish-white fuzz that clothes all baby birds of prey. But as we did not want to chance having the little birds fly the nest before we could return we took one fledgling with us when we left. We picked the smaller of the two as we wanted a male.

On arriving home I placed the curious, ghost-like creature on a piece of black velvet to be photographed. While I focused camera and flash-gun he stood shakily on his great yellow feet and stretched short wings above his baby head. A second after I released the shutter his weak legs gave

way and with a tiny squeek he collapsed in a fuzzy heap. He had had a busy day.

Almost as soon as we had put him into a well-lined wicker basket, which was to be his new home, he closed his eyes, dropped his head onto the soft lining, and fell asleep.

Early next morning his training began. While I pushed small bits of warm, raw beef into his sharp beak I blew on a shrill whistle at regular intervals. In time he would associate the whistling with his food. From then on, whenever he would hear this "come-and-get-it" signal he would fly unhesitatingly to my fist to be fed. Of course it would be a good four weeks before he learned to fly, but the earlier his training was begun the better.

By the end of his first week he was strong enough to stand and walk, and even had a sprinkling of short brown feathers on back and wings and tail. At this point we christened him *Gavilanito*—Spanish for "Little Hawk." As he grew larger, however, we shortened it to *Gavilán*—just plain "Hawk." Each evening when I returned from the Post I would be greeted by a soft, clucking sound. On entering the house *Gavilán* would be standing in his basket watching the door and chirping at me.

He was always hungry. As soon as I reached home I would warm some beef and begin blowing the whistle. Out of the basket he would hop and come staggering across the floor to my hand. Sometimes he

would hold his little wings outspread, almost as if pretending he were flying. This stage of Gavilán's education was particularly hard on my wife. Although she was as fond of the tiny fellow as I, it was a bit rough having the ancient design of one's Navajo rugs changed over and over again by a baby hawk, however appealing he might be.

During the next two weeks Gavilán grew in strength and size and appetite. Chocolate-colored feathers began to cover his back and wings; tawny, drop-marked ones his breast. Tail feathers grew long and banded. Even his white poll acquired a new brown headdress.

From time to time his beef diet was varied with cottontail and jackrabbit. At least once a week a captive hawk must be given fur or feathers. Without this "roughage" it rapidly would sicken and die. All birds of prey—the hawks, owls and eagles—regularly rid themselves of the indigestible fur, bones and feathers eaten with their meaty meals by "casting" them in the form of a small, greyish pellet. By exam-

ining these telltale pellets scientists can determine exactly what type of prey is being taken by any particular species of hawk or owl.

When Gavilán was strong enough to tear his meat into bites by himself it was time to begin his training as a "falcon."

Correctly the term "falcon" is applicable only to the members of the subfamily Falconinae of the great order of birds of prey. Falcons are characterized by long pointed wings and notched or "toothed" beaks. A hawk may be a falcon, or it may be any one of numerous "non-falcon" hawks such as the Cooper or Sharpshin, Marsh or Rough-leg or Swainson. Because of the true falcon's swiftness, power, and manner of hunting it has been the favorite of falconers for well over 3,000 years. But all hawks, falcons or otherwise, are capable of being trained to hunt for man. Different species are suited for different types of game.

The first thing to do to make a "falcon" of Gavilán was to outfit him properly. For his legs I cut two short straps or "jesses"

from a piece of soft leather. A leash was made from another. While my wife held the now large, well-feathered, and loudly protesting Gavilán flat on a pillow, I fastened a jesse to each leg, brought both jesses together at a snap swivel on one end of the leash, and tied the other to the base of a steady wooden bar-perch. Now he could sit on his perch or hop off the floor and back again. But no longer could he go around poking his long beak into everything within reach. The swivel connecting leash and jesses prevented his feet becoming twisted as he moved about. This system of leash and jesses is the only practical way of tethering a hawk.

At this time I began carrying Gavilán about on my gloved fist. At first he did not think much of the idea. As all hawks do, he would "bate," that is fly off the fist to hang by legs and leash in mid-air at the slightest excuse. Before long he overcame this bad habit and whether I walked or ran or just sat and read, he would stand firm-

He stood shakily on his great yellow feet and stretched short wings over his baby head.



ly on my fist, clutching it with his steely talons.

From the day we put leash and jesses on Gavilán, and gave him a perch like a true falcon's, we noticed a change in his bearing and attitude. Heretofore he had rushed up to us to stand as close to our legs as possible, or hopped onto our knees to lie down on them for a visit. Now he began holding himself more aloof. He lost his baby look and began striking at all objects within reach as if practicing a sort of hawk jui-jitsu. He seemed to realize he was one of nature's noblest and fiercest creatures.

We first noticed this strange metamorphosis when without the slightest warning he made a wild dash to the end of his leash in an effort to seize a tame pocket mouse which I was at the moment examining on the floor. That he failed to get the little rodent, and fell flat on his chinless face instead, did not belie his intentions. We began to have hopes that he might prove to be a hunter after all, and not just a gentle lap-bird all his life.

Gradually he became used to having strange people rush up to his perch, stare at him, and begin asking foolish questions or talking baby talk to him. Almost everyone called him a "hen-hawk," an epithet all self-respecting hawks abhor. That there exists no one bird which actually subsists only on hens seems unknown to most people. Calling a hawk (even a bird-eating species) a "hen-hawk" is about as sensible as calling all dogs "chicken-dogs" just because some do kill poultry, or calling all men "criminals" because a few unhappily are.

By the first week in August Gavilán was so strong and expert at standing on my fist that I began taking him with me to the Post. Standing on the back of the car's front seat he rode bump and curve like a veteran. Coming and going he peered out at the passing scenery and speeding automobiles. The look on peoples' faces when they saw a great live hawk riding in a car was something to behold! In the slow-moving downtown traffic we often heard in awesome tones the words: "See the owl, look at the parrot, it's an eagle, no a crow." About the only thing he was never called was "canary." We were thankful for that—it might have broken his proud spirit.

At the same time that I had begun carrying Gavilán around on my fist I began feeding him on a "lure." The lure was made of a pair of horseshoes taped together. On it the hawk's meat was tied, and on it he stood while tearing it to pieces. From now on he would come to the lure instead of to my fist when he heard the whistle. The heavy lure, which he was unable to lift, would teach him not to carry off the quarry he might catch while hunting.

The next stage in the bird's training was the important one of learning to fly.

For many days he faithfully had been flapping his now long and strong wings, in the hope, no doubt, that I would let him "solo" in the near future. The night before his first flight I fed him considerably less than usual. Hunger would help him get up courage enough to take off and try his new wings. For his aerial debut I took him to the Post. As usual, while I worked in the darkroom or went out on assignments, Gavilán sat on a perch just outside the photo lab. Imagine my horror on looking out of the lab at about noon to find four husky soldiers standing around the perch each pointing an ugly "45" straight at the hawk. I lost no time in rushing out to the rescue.

With sleeves rolled up and hypo dripping from my hands I must have looked pretty concerned. Just before I reached the murderous-looking group one fellow caught sight of me and laughingly said: "We won't hurt your hawk—we're just seeing if it's gun-shy!" Gavilán was not at all shy, of guns or anything else, and proved it by biting one soldier when he tried to pet him on the back. I hastily explained that the hawk was perfectly gentle but did not like being stroked except where he could see what was happening. Another soldier expressed the common fear that Gavilán might strike at his eyes. It was a pleasure to be able to tell him that out of some dozen birds I had trained none had ever attempted such a trick.

Still a third asked whether all hawks did not prey exclusively on game birds and poultry. I quickly assured him that only a few species take birds. The other commoner hawks such as the Red-tail, Swainson, Rough-leg and Sparrow hawk feed principally upon such destructive pests as rats, mice, rabbits and insects. On occasion an individual hawk may prove detrimental to man's interests. It should be controlled. But unless actually caught destroying poultry all hawks should be given complete protection. The same goes for owls and eagles. Otherwise the day will come when our friend and ally the hawk no longer will protect us from the ravages of insect and rodent. And once more and too late we will pay the penalty for destroying our irreplaceable wildlife as we have our forests and grasslands.

After Retreat it was time to fly Gavilán. Along one side of the parade ground ran a high fence. On the top rail I placed the hungry hawk. To the end of the leash I tied a 100 foot "creance" of fish line. This could not interfere with his flying but would enable me to pull him back if he tried to fly away. I was pretty sure of the bird but didn't want to take any chances.

Keeping the lure well out of sight I backed off until a good 75 feet separated the hawk and me. Then as I blew the whistle I threw the lure to the ground. Gavilán stared at it a moment, then looked down at the ground six feet below him, and then back at the lure. Suddenly, with

a great flapping of wings, he took off. He managed to lurch through the air to within a few feet of the lure before he gave out. But he had flown!

By the end of August he had become a proficient flier. He could glide, bank and soar, and could strike the lure with terrible force. No longer did he fly from a fence post, nor with a string to keep him from escaping. For his daily flight I took him to the parade ground or to an open field near home. After unsnapping leash from jesses I would toss him high into the air. On the ever-present Texas wind he would soar higher and higher with his keen hawk-eyes ever upon me. When I would take the lure from my pocket and begin blowing on the whistle he would fly straight back to the lure and my fist. Just before reaching it he would spread his tail to break his forward motion and then land expertly upon it. Leash would then be snapped onto jesses and home we both would go.

The next step to be learned was how to hunt. I wanted to use him on ground squirrels and rabbits. To teach him to hunt these creatures I stuffed several skins of each animal and used them for lures. The stuffed skins with meat tied to them would be thrown on the ground and the hawk would seize them.

As soon as he learned that a squirrel or rabbit skin meant food he was ready for a bit of hunting. But at this exciting stage in his education two limiting circumstances developed. The first was gas rationing. Now I would not be able to take Gavilán to the desert for game. I thought of teaching him to hunt pigeons, but hesitated on account of squab-raising neighbors.

The second tragedy was the sudden scarcity of meat. It was difficult to find meat for human consumption; almost impossible for a hawk's. I set trap-lines for mice at the Post and at home but these sources soon were exhausted. And the scarcity of "22" shells made it impossible to shoot rodents and rabbits even if I had been able to get to the desert to find them.

It soon became evident that there was but one thing to do: free Gavilán! On his own we knew he would fare well, for he knew how to fly and to hunt. Late in September we saved enough extra gasoline to drive far out into the autumn desert. For the last time I took Gavilán upon my fist. I unsnapped the leash, cut the jesses from his legs, and tossed him into the clear, cool air. For many, many minutes he soared above our heads watching for the lure. Finally he must have realized that never again would he see lure or hear whistle. With one piercing backward glance he flew away into the desert distance.

Perhaps, as Swainsons are wont to do, he migrated southward to Central or South America. Perhaps this coming spring the still and silent desert will see Gavilán soaring over its rolling dunes, over its mesquite and yucca.

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ZINE

Late in the afternoon the pack mules, groaning under their loads of gold, came to a halt on the summit, and as the sound of the tinkling bell on the lead mule died away, the two men sat down to rest.



Don Joaquin and His Gold Mine

In a cave near Montezuma's Head in the Estrella mountains south of Phoenix, Arizona, lies a treasure of 50 bars of gold and 30 bags of gold nuggets, according to Indian tradition. John D. Mitchell here recounts the gruesome story of this treasure as told today among Pima and Maricopa Indians. It is the tale of a man whose love of his gold brought death to the only other person who knew of its secret hiding place, yet who himself died without benefiting from it or revealing his secret.

By JOHN D. MITCHELL
Illustration by John Hansen

DEEP in the heart of the Estrella mountains, south of Phoenix, Arizona, stands the tumble-down ruins of an old rock house. The walls are several feet thick and the loopholes around the top are mute evidence of the purpose

for which the house was built—to protect the occupants against Apache Indians. In the bottom of the wild rocky canyon nearby are the partly caved workings of an ancient gold mine.

There is a tradition among the Pima and

Maricopa Indians now living in the vicinity of the St. Catherine mission on the east side of the mountains, that their ancestors worked in the mine and that it belonged to an old Spaniard by the name of Don Joaquin Campoy, from Guadalajara, Mexico, and that he left a great treasure buried in a nearby cave.

According to the stories told by these Indians, the mine had been worked for a number of years, when in 1847 Indian scouts raced their ponies from village to village with the startling news that the American Army of the West was headed down the Gila river toward the Pima villages.

Rumor had it that these tall strangers had designs on the mines of the country and that honesty was not one of their characteristics. Becoming greatly alarmed at these wild and unfounded rumors, Don Joaquin decided to abandon his mine and flee to his beloved Guadalajara. He could return north again when the strangers had been driven from the country, and resume work at his mine in peace and safety.

After a sleepless night he made his plans to discharge the crew, start the Mexicans

on their way to Guadalajara, and the Indians back to their homes in the valley, then bury the treasure in some secret place in the mountains until he could return in safety for it.

In his possession were 50 bars of gold recovered from the ore taken from the vein, and 30 bags of gold nuggets from the placer operations in the canyon below where the rich vein outcropped. Who among his villainous crew of miners could be trusted to help him bury the gold and where should he hide it?

When the crew had been sent on their way, Don Joaquin chose an old Maricopa to help him load the 3,000 pounds of gold on the backs of 15 mules. When the last pack was in place and all was in readiness, the mules were headed up the steep trail toward Butterfly peak where they hoped to strike another trail leading down the high ridge past Montezuma's Head, which is near the south end of the range.

Late in the afternoon the pack mules, groaning under their loads of gold, came to a halt on the summit, and as the sound of the tinkling bell on the lead mule died away, the two men sat down to rest. Far below them to the west at the bottom of the deep box canyon, at the end of a zig-zag trail lay the old rock house and the mine workings. Below them to the east lay the green valley crossed by the Salt, Gila and Santa Cruz rivers that shown like silver threads in the setting sun. Far beyond the valley to the northeast the hoary head of the Four Peaks stood silent guard over the upland plains.

The little pack train made its way slowly down the winding trail toward Montezuma's Head and when about half way down turned off the trail to the west and entered a short box canyon. They presently came to a halt in front of a cave. After the treasure had been unloaded and packed into the cave, the old Indian silently dug a deep hole in the soft dirt and guano that had accumulated near the back end.

The sun had long since gone down behind the ragged edge of the western world and the canyon lay dark and shadowy ahead. This was to be the last resting place of the treasure. The hole completed, the heavy bars were dropped in first and then the leather bags of placer gold. When the last bag dropped with a thud the old Maricopa fell forward into the hole on top of the gold—struck dead by a club in the hands of Don Joaquin.

Hurriedly filling the hole with bat guano and dirt, the old man paused to view his work with grim satisfaction, and then, after marking the spot on a map that

he carried with him, headed the pack train down the trail past Montezuma's Head and out onto the flat country at the south end of the range.

Don Joaquin overtook the miners at the little butte that stands in the valley only a short distance southeast of the Estrellas where they had gone into camp for the night. As they sat around the campfire a feeling of confidence unmingled with remorse seemed to comfort the old man.

At sunrise the next morning Don Joaquin was found dead in his blankets. The body was laid to rest at the foot of the little butte and marked with a cairn of stones that may be seen there today.

Pima and Maricopa Indians claim that the map fell into the hands of one of the Mexican miners upon the death of Don Joaquin and that about 30 years after the signing of the Gadsden Treaty, this Mexican miner, then an old man, came north with the map in an effort to relocate the mine and treasure. Owing to the fact that the Apache Indians were then on the war path and the Maricopas and Pimas refused to lead him to it, he returned to Mexico without accomplishing his purpose.

Many people including the writer have seen the old rock house and the mine workings in the canyon below it. The vein is a true fissure cutting gneiss with a strike N. 30° east and dips 40° to the southeast. Some free gold was observed in the 18-inch vein at the top of the shaft. From all indications on the spot work must have been carried on over a long period of time both in the shaft and open cuts and in the placer operations in the canyon below the mine.

It is believed that some of the older Indians know the location of the cave, but because one of their tribesmen was killed there, refuse to go near it or direct any one else to it. However, they say that two young Indians, riding after cattle many years ago in the wild lands around the southern tip of the Estrellas, suddenly were overtaken by a storm and were forced to seek shelter in a nearby cave. The storm raged on and the wind howled down through the hills from the north.

The two cowboys decided to spend the night in the cave to protect themselves from the cold. About midnight the storm abated and they were startled by a rustling noise just outside the entrance and by a weird white light that suddenly appeared from the floor near the back of the cave. The noise outside ceased and the light disappeared as suddenly as it had come.

Two golden owls and their brood have taken up their abode in the old rock house

perched on the canyon wall near the mine and lizards sun themselves on the rock fence across the canyon below the mine. Time and erosion have dimmed the many crosses chiseled in the boulders that line the trail that leads from the mine to the valley below.

The Army of the West, after trading with the friendly Pimas, passed down the valley and over the hills. Don Joaquin in his lonely grave by the little butte sleeps on. The mine in the deep canyon at the end of the zig-zag trail is still unworked and the treasure lies undisturbed in the cave. So is the story of Don Joaquin and his gold mine told time and time again.

Amateur Photo Contest...

Each month the Desert Magazine offers cash awards of \$5.00 and \$3.00 for first and second place winners in an amateur photographic contest. The staff also reserves the right to buy any non-winning pictures.

Pictures submitted in the contest are limited to desert subjects, but there is no restriction as to the residence of the photographer. Subjects may include Indian pictures, plant and animal life of the desert, rock formations—in fact everything that belongs essentially to the desert country.

Following are the rules governing the photographic contest:

1—Pictures submitted in the May contest must be received at the Desert Magazine office by May 20.

2—Not more than four prints may be submitted by one person in one month.

3—Winners will be required to furnish either good glossy enlargements or the original negatives if requested.

4—Prints must be in black and white, 3 1/4 x 5 1/2 or larger, and must be on glossy paper.

Pictures will be returned only when stamped envelopes or photo-mailers are enclosed.

For non-prize-winning pictures accepted for publication \$1.00 will be paid for each print.

Winners of the May contest will be announced and the pictures published in the July number of the magazine. Address all entries to:

Contest Editor, Desert Magazine, El Centro, California.

By nature Dad Fairbanks was of the stuff that produced Daniel Boone and Kit Carson. If he'd been with either, his long strides would have kept him well in the lead, grumbling at the slower pace of the others. He itched for new fields and new adventure—he found both in the Death Valley country. Here are highlights in the life of a man whose courage matched the trials of a forbidding and ruthless land.

Long Man

By WILLIAM CARRUTHERS

INTO Death Valley country came a long, lean adventurer. A tough frame that fitted the hard, hungry land. A fine frank face. Keen, steady brown eyes. The poise of a square shooter, sure of himself. His chief assets were hope, tireless energy and a wife whose courage matched his own. The Indians promptly named him Long Man.

To a later generation and to thousands of tourists who have stopped at Baker—southern gateway to the Big Sink at the bottom of America, he is known as Dad Fairbanks.

Not long ago one of these tourists stepped from a Rolls-Royce and walked into Dad's station. "Remember me?"

"Face is familiar," Dad said.

"Twenty-five years ago you loaned me some money."

"I've loaned money to a lot of fellows," Dad parried.

"But I never paid it back," the stranger added.

"A helluva lot of 'em didn't," Dad answered.

The tourist reached into his pocket, peeled off \$1,000 from a roll and handed it to Dad. "I borrowed \$300 from you and left the country. I'm Harry Oakes. Where's Ma?"

Dad led him to the Fairbanks cottage nearby, and there with Celestia Abigail Fairbanks they sat down to talk about old times and changes. Since those days Harry Oakes had become the largest taxpayer in Canada. His guests are served on gold plates. With a partner, W. H. Wright he learned that the title to a certain gold claim would expire at midnight on a certain day. They sat up in a temperature 40



R. J. (Dad) Fairbanks. He saw the rise of Tonopah, Goldfield, Rhyolite and Greenwater. Frasher photo.

degrees below zero until the stroke of 12, and restaked the Lake Shore mines—Canada's richest gold property.

Luck is like that, any desert man will tell you.

Dad and Ma Fairbanks too had attained fortune. Not as much money as Oakes, but wealth nevertheless vast as the far-flung skies. Friendships. A lifetime of helpfulness. Riches infinitely beyond measure in dollar value.

Long Man became as much a part of Death Valley country as the Salt Pools—inseparable from its history and its legends. Fifty years ago you didn't get into your car and speed through the country for a weekend trip. Your progress was one mile per hour to four or five—provided you didn't lose your way, and if you escaped the hazards of heat and lack of water and didn't add another pile of bones to the toll of a murderous sun.

When Ralph Jacobus Fairbanks went into the country he decided that to lick the desert you had to know it—its trails, its water holes, its tricky moods. Accordingly, he engaged an Indian known as Panamint Tom, a brother of the notorious Hungry

Bill, to show him Death Valley. Travelers of the early days were warned, "Keep your eyes open and your finger on the trigger. That's Hungry Bill country." It was believed that Hungry Bill could have explained the fate of many men who went into the desert and never returned.

But Fairbanks was unafraid. After leaving the main traveled road, Dad said to Tom: "This is Indian country. You go first." He was taking no chances. At night he directed Panamint Tom where to spread his roll, then chose the site for his own. Both men carried six-guns. When the trip was over and they again reached the main road, Panamint Tom said to Dad: "This is white man's country. You go first." Dad did. In later years, they often talked of that trip. "Long Man, you heap scared," Tom said. Dad confessed he was. "Me too," Tom chuckled.

The Panamint at this period was a favorite lair of wanted men. Once there, they were usually safe.

"Hungry Bill got his moniker from his incessant begging for food," Dad recalls. "He was a bad hombre and hated the whites. The Hungry Bill ranch in Six

Springs canyon is one of the landmarks of Death Valley. Once, Herman Jones of Shoshone hired an Indian boy from Ash Meadows, known as Johnny, to help him on a prospecting trip. Approaching Hungry Bill's ranch, Johnny balked and Herman had to use his gun as a persuader. When they quit work and made camp, Johnny dropped down on the ground, pulled his hat over his eyes and went to sleep.

"After a few moments, Herman heard a stir, looked about and saw Hungry Bill. Simultaneously Hungry Bill saw Johnny. His eyes narrowed. Then a tense gleam came into them, like that of a wildcat seeing prey. Without a word he tiptoed toward them, and treading lightly, circled the sleeping boy. Then he stooped, peered under the hat, rose and turned to Herman: 'Him no-good Indian. Me kill him for you.' He stepped aside, drew his gun before Herman realized his intention. With a warning shout, Herman whipped out his own gun and prevented the slaughter.

"Why did Bill want to kill him? Well, sometime before, Johnny had fallen in love with a Panamint Indian girl and in accordance with tribal custom, had paid Hungry Bill \$20 for the privilege of marrying her. Johnny took his bride to Ash Meadows, but she pined for her Panamint and ran away. Johnny went after her and for another \$20 Hungry Bill ordered her to go back with him. Again the girl left him. Johnny decided twice was plenty and killed her, and this was Hungry Bill's first chance for blood vengeance.

"It was a hard, raw land. Many of the earliest settlers were still living. Most of them tough. But they paid their debts and shot from the hip."

Among famed bandits who found a



"Ma" Fairbanks who mothered hundreds distressed in the wastelands.

hideout in that area was Tilly Younger. At 14 years of age he had belonged to the Jesse James gang. The Younger Brothers succeeded those outlaws. Turning prospector Tilly behaved himself except for an occasional brawl. In one of these at Good Springs, Nevada, he chewed off one of the ears of Jack Longstreet and cropped the other. Jack was also a killer."

When he was 90 years of age Younger walked into Shoshone one night and asked for a bed. Fairbanks gave him a cabin, lighted the lamp. "Blow it out," Younger ordered. "I've gone to bed for dam' nigh 100 years without a light." Younger didn't appear at breakfast and Dad went to his cabin. "He was dead," Dad said, adding:

"That's the way to die. Go to sleep and forget to wake up."

In those big spaces one learns that life is not a perpetual lease and accepts death as just one of nature's casual facts.

Fairbanks started the first restaurant in Beatty, Nevada. Later he decided that a supply station on the route of the Goldfield rush, where people could stay overnight and feed their teams, would be a paying enterprise.

At Ash Meadows he found an abandoned ranch with good water and was amazed to see a luxuriant crop of wild hay. Hay was worth \$200 a ton. Learning that the long absent owner lived in a remote canyon, he drove all night and arrived at daylight to dicker. "The ranch is all right," Dad complained guilelessly, "but it'll cost more to get rid of that wild grass than the ranch is worth."

When the owner said it could be plowed under easily, Dad surmised the man didn't realize the value of the hay now that the once lonely road going by the place was jammed with teams headed for the gold fields.

"I figured he'd take \$1,000," Dad said. "It was worth \$5,000 to me, so I offered him \$2,000. He snapped me up. I wrote out an option on the spot and made him sign it. 'Now I'll drive you in and we can have the deed made out.' That suited him. I never let him out of my sight, for fear some fool would jump my offer. If he wanted to see a fellow, so did I. If he wanted a drink of water, I went along. Finally we got the deed made out and I paid him. He hurried away."

The deal closed, Dad breathed a sigh of relief and went out on the street where he met Ed Metcalf, a desert mining man, chuckling to himself.

"What's so funny?" Dad asked.

Metcalf pointed to the recent owner of the ranch, surrounded by a group of men laughing loudly. "Why, that fellow was just telling me about a sucker he gaffed. He had a ranch here that he'd been trying to sell for \$500. Some dam' fool gave him \$2,000."

Dad gulped, and turning to Ed he said weakly: "Come on, Ed, I'll buy the drinks."

"It turned out all right, though," Dad said. "Help was scarce and I had to hire a city fellow to feed the teams that stayed overnight. He knew nothing about hay or horses. He would fill the racks at night. The next morning there'd be more hay on the ground than the horses had eaten. He'd fork the hay up, shake it out and throw it back. The fool didn't know a horse won't touch tainted hay, so when the next team came along, the racks were full, but the teams only sniffed at it. Used over and over like that, I figure I must have got a dollar a pound for that hay."

Dad himself operated a freight line as far north as Goldfield, doing a monthly business that reached into many thousands



Thousands of tourists have stopped at Dad Fairbanks' caravansary in Baker, California, for a glimpse of the man who has brought in many men lost in the forbidding areas around Death Valley. Frasher photo.

of dollars. It was a long haul over terrible roads and when he had cussed a 16-mule team into Goldfield, he was ready for diversion. He was the gregarious sort—loved poker for its thrill. The matter of stakes was inconsequential, provided of course he could bet \$10,000 or \$12,000 on his hand.

One night in such a game he found himself sitting alongside a fellow who had removed his big overcoat with enormous patch pockets, and hung it on his chair. Dad noticed intermittent movements of this fellow's broad palm from the cards he'd been dealt, to the pocket. Finally Dad saw the crook had cached every ace in the deck. Later Dad opened a pot. Everyone stayed. The crook raised the ante. Dad raised him back. Others dropped out, but this fellow stayed. Each drew a card and the real betting began. Dad bet \$1,000.

"Have to raise you \$5,000," the other said. Dad called it. With the confidence that came from the cached aces, the shark smiled exultantly as he laid down four kings. "I reckon that beats you," he shot at Dad and started to rake in the pot.

"Not so fast," Dad ordered and spread out four aces. The crook gave him a quick look but Dad's eyes were steady. Neither said a word. The crook couldn't. He knew that Dad's long fingers had found his pocket.

The same world famous mining engineers who, after examining Tonopah and Goldfield, declared that neither would produce enough ore to pay development costs, now advised Charles M. Schwab, president of Bethlehem Steel, that Greenwater, on the eastern slope of Black mountain would prove to be the world's largest copper deposit. To those deceiving hills Dad followed the stampeding crowds. Wrong at Goldfield and Tonopah, the engineers made it three in a row by being wrong about Greenwater. It proved to be a dud, but Dad stayed to the bitter end.

"This town'll come back, Ma," he kept telling his wife when the weeds began to obscure the doorsteps of the empty houses about. But the weeds grew and seeded the streets. The noises of tinny pianos and scraping feet no longer broke upon the desert night and Dad's faith at last wavered. "Ma, we've got \$10 left."

Then what seemed to be an angel unawares, dropped in on the Fairbanks' in the person of a mining promoter.

"I'm opening up a mine about 28 miles below," he told Dad, "but I've got to find somebody to board about 30 men."

Dad's eager eyes kindled. He could feed 'em and sleep 'em for \$60 a month. "I know of a water hole down that way. Place called Shoshone."

"Fine. The mine's close by. Get ready."

When he had gone Dad said, "Ma, 30 boarders at \$60 a head is \$1,800 a month."

"But there're no buildings for us there," Ma reminded him.



From cliffs above Death Valley Panamint Tom saw the death struggles of the Bennett-Arcane party in 1849.

Dad gestured toward the abandoned houses strung along the deserted streets. "I'll haul some of those down. Get Charley to help."

Charley is the present Senator Brown of Inyo county. Then he was just a husky youngster, trying to coax the beautiful Stella Fairbanks into marrying him instead of a debonair chap known to Greenwater as the Rattlesnake Kid, because of his hobby—hunting rattlers to make ornaments of their skins.

Today where Greenwater stood, there is little to remind one of the hectic crowds that poured through Dead Man's canyon or struggled up through Congress wash. The faded leg of a pair of overalls protruding from a covering of sand. A sun-baked shoe lying on its side. A pile of rusty tins. Broken bottles purpling in the sun. But somewhere under the crust of gravel and sand there is a case of champagne, which Dad Fairbanks buried so well he never could find it.

Dad hurried the preparations at Shoshone. The \$10 had been invested in canned soups, meats and vegetables and

the Fairbanks' were all set for the boarders. Then he learned the brutal truth. The angel unawares, was just an engaging liar. The boarders never came. Dad picked up the canned goods, arranged them on a table in front of his shack and put a sign up that read: "Store."

That was the beginning of Shoshone.

In time Shoshone seemed to be crowded. Too many shacks over in the jungle, as they call the thicket of mesquite. Altogether there may have been 18 or 20 people within a radius of a mile—provided you included squaws and their children and the three or four old-timers living in the dugouts they'd chiseled in the chalky cliffs of Dublin Gulch.

Dad began to feel that civilization was closing in on him. By nature he was of the stuff that produced Daniel Boone and Kit Carson. If he'd been with either, his long strides would have kept him well in the lead, grumbling at the slower pace of the others. He itched for new fields.

On what is now known as Highway 66 there was a siding called Baker. It was a barren, desolate place. In summer it is

comparable to a slab of hell. Soda lake picks up the sun's rays and sends them forth red hot on the blasts that sweep down from the Devil's Playground. In winter one yearns for the balmy climate of Siberia.

But from Baker one goes north into Death Valley and on to Beatty and Goldfield. So Dad sold out to his son-in-law, Charley, and moved again. With a store, a gas pump and a few cabins, the strategic location got 'em going and coming.

Once, stopping for dinner at Baker, I met Dad coming out of the dining room.

"How's the fare?" I asked.

Dad eyed me. "You hungry?"

"Hungry as a bear," I said.

"All right. Go on in. A hungry man can stand anything." Then he added in an undertone: "Employment agent sent me the world's worst cook, but—" His voice trailed off as he hurried to a car waiting in front.

It is fitting to end this story of Long Man with the statement that when Dad decided to retire, the store had expanded, the string of cabins had lengthened and the Standard Oil company was glad to lease only the long battery of pumps at a figure insuring independence for life. But it is a bit ironical to add that after all the years in the awesome silence of Death Valley country, Dad Fairbanks views the passing throng from a house in Hollywood.

"I'd never have thought it of you," I kidded.

"Hell—" Dad retorted, "I needed solitude. Haven't you got sense enough to know that the loneliest place on Godamighty's earth is a city?"

Weather

FROM PHOENIX BUREAU

Temperatures—	Degrees
Mean for March	63.9
Normal for March	60.7
High on March 28	92.0
Low on March 20	40.0
Rainfall—	Inches
Total for March	0.73
Normal for March	0.68
Weather—	
Days clear	11
Days partly cloudy	12
Days cloudy	8
Percentage of sunshine	77

FROM YUMA BUREAU

Temperatures—	Degrees
Mean for March	68.0
Normal for March	64.1
High on March 28	95.0
Low on March 1	47.0
Rainfall—	Inches
Total for March	0.27
73-year March average	0.34
Weather—	
Days clear	24
Days partly cloudy	4
Days cloudy	3
Percentage of sunshine	89

DESERT QUIZ

Here are 20 more quiz questions for those who like to test themselves on their knowledge of the desert or who would like to add to their store of desert information. This month's list includes geography, history, Indian lore, botany, mineralogy. The average reader should answer 10 of these correctly. If you score 15 you know more than most of the desert rats—and only the super-students will rate more than 15 correct answers. You'll find the answers on page 22.

- 1—On the Indian reservation near Palm Springs resort there are—
Shoshone..... Cahuilla..... Pahute..... No Indians.....
- 2—"No Life for a Lady," best-seller book on New Mexico ranch life, was written by—
Mary Austin..... Agnes Morely Cleaveland.....
Mary Kidder Rak..... Hilda Faunce.....
- 3—Picket Post House, near Superior, Arizona, is—
Remains of an early military post..... Stage coach station..... A residence..... A resort.....
- 4—Desert Lapis is a common name for—
Lapis lazuli.....
Deep blue turquoise..... Dumortierite..... Kyanite.....
- 5—Blossoms of the smoke tree are—
White..... Blue..... Yellow.....
Pink.....
- 6—If you were camping at Peach Springs, Arizona, you would be closest to the home of the—
Havasupai..... Navajo..... Maricopa.....
Mojave Indians.....
- 7—Godfrey Sykes explored the Colorado river in a boat named—
Hilda..... Explorer..... Dellenbaugh..... Colorado.....
- 8—"La Reina del Canyon" is—
An Indian shrine..... A palm tree.....
A legendary spirit of Santa Rosa mountain.....
Cahuilla Indian chief's wife.....
- 9—The impressive promontory often called "Home of the Whistling Ghosts" is—
Acoma..... Enchanted Mesa..... Window Rock.....
Inscription Rock.....
- 10—Colorado City was the first name of—
Blythe, California.....
Las Vegas, Nevada..... Yuma, Arizona..... Ehrenberg, Arizona.....
- 11—A Gila monster is—
Black..... Black with orange markings.....
Yellow with black markings..... Sand-color.....
- 12—Lehman Caves national monument is located in—
New Mexico..... Nevada..... Arizona..... Utah.....
- 13—Essonite is a type of—
Volcanic rock..... Seismotite.....
Sandstone stratum..... Garnet.....
- 14—John Wetherill is best known as an—
Indian trader.....
Archaeologist..... Early day scout..... A missionary.....
- 15—Cabbage Palmettos is the name given by Lt. W. H. Emory to—
Joshua trees..... Whipple yucca..... Washingtonia palms.....
Squaw cabbage.....
- 16—Hassayampa river in Arizona is famed for—
An early-day legend.....
Its trout fishing..... An irrigation dam..... An Indian settlement.....
- 17—Scientists call a desert tortoise—
Gopherus agassizi.....
Bursera microphylla..... Centurus uropygialis..... Coleonyx variegatus.....
- 18—The White House cliff dwelling is located in—
Canyon de Chelly.....
Chaco canyon..... White mountains in Arizona.....
Gila Cliff Dwellings national monument.....
- 19—The Pima Indians are best known for their—
Basket-making.....
Primitive Easter rites..... Unusual architecture..... "Waffle-gardens".....
- 20—One of the popular camping spots in Southern California is Split Rock. It is located nearest—
Palm Springs..... Twentynine Palms.....
Borrego valley..... Salton sea.....

Desert rain prevented the Souths' investigating a possible location for a new home—but it also brought a train of rainy-day activities which ended in a stormy climax. It started with an excursion in the rain to gather yucca leaves for making non-rationed sandals for the family, and was furthered by Rudyard's discovery of a clay deposit—which brought to his artistic soul visions of a "tremenjus pot." Here, Marshal tells of the dramatic and sorrowful conclusion of that dream of Rudyard's.

Desert Refuge

By MARSHAL SOUTH

THIS is the time of year when, upon Ghost mountain, the hardy mesquites thrust lofty flower shoots toward the desert sky. This year will be the first of many that the mesquite season has not meant a great deal to us. For the period was always looked forward to. Not alone for the yellow glory of the blooms, which transformed the desert into a garden of tossing gold, but also because of the wholesome, candy-like food which roast mesquite hearts provided us.

Perhaps, more than any other thing, the mesquites and the ancient mesquite hearths, where the old time Indians roasted the toothsome delicacy long before our day, expressed the spirit of Ghost mountain. In that rock bound solitude of hushed desert peace, where silence reigns and where the warm, faint breeze, laden with the spicy tang of creosotes and of junipers, drifts down sunlit slopes, the lone, deserted old mesquite hearths are like shrines left by a forgotten people. One can sit beside the ancient, fire-blackened stones and dream, weaving a tapestry of fancy back through the long dead years of a simple, primitive world that has crumbled and vanished, even as have the brown hands that once tended the ancient roasting hearths.

But the desert is the desert. Minor features may vary with locality, but the mysterious, inscrutable spirit of it remains the same. Right here, where we are at present, we have no mesquites. But there are other things to compensate, and the song of the desert has lost nothing of its charm because of the one missing note.

To console us for our lost century plants we have new strange ridges of fantastic black lava, new cliffs of wind-sculptured sandstone that glow pink and vermilion in the changing light, new ranks of aromatic sage brush to scent the wandering winds. "It takes hold of you, this country," said a friend who had drifted in from away beyond Kayenta. "I came out, in the first place, for just a couple of weeks. But I haven't got back yet."

"How long ago was that?" we asked him, for he didn't look like a recent arrival.

"Quite a bit over 40 years," he answered, his face crinkling in a grin. "Guess maybe I'll decide to stay. I wouldn't know how to live anywhere else now. The desert sort of gets into your blood."

It has been raining for almost a week. Spring rain. The sort that always makes your fingers itch to be working in the moist earth. In the desert especially. Because somehow every primitive and fundamental urge of man and nature seems to be intensified in the desert. Nature's spur of adversity working to goad life towards more strenuous efforts. It is this combination which has developed the defensive armor of desert plants; which has made desert animals so tough and resourceful; which made the desert Indian more than a match for his rivals of more favored localities.

This particular storm was a surprise. We had not expected it. We had planned a trip to investigate a possible new home location of which we had heard. All arrangements had been



Tanya at one of the long deserted mesquite roasting hearths on Ghost mountain.

made and we were ready for an early morning start. Rider and Rudyard had gone to bed all keyed up with the sense of impending adventure, impatient for morning.

And we all awoke to the steady drip of rain. Drip! Drip! A depressing, monotonous trickling. Adventure faded. In the glum light of the open door we could see away across shadowy ridges wrapped in chill half light that was a blend of fog and retreating night.

"O-oh," Rudyard said. And there was the ultimate of dejection in his voice. "Won't we be able to go, daddy?"

Answer wasn't necessary. He knew well enough. Rider scrambled from the bed covers and drew back the curtains—the same curtains that we had hauled all the way from Yaquitepec—and peered out. "No," he said gloomily, "we're not going today. And probably not tomorrow either."

The desert was a world of dripping grey, through which the nearer rocky ridges shouldered like ghosts. The creosotes and the mesquites and the grey hunched sage brushes stood about bedraggled and dripping like dejected chickens in a barnyard. The sky was roofed with a canopy of weeping cloud which lifted every once in a while to reveal long, sinister streamers of denser, sodden vapor hurrying in from the southeast.

Drip! Drip! Drip! The water trickled from the house eaves and the cat, outside the screen door, mewed querulously to be let in. Betty, the little goat, stamped and figeted in her hutch, near the porch. And Bonny, the dog, snuffed and scratched noisily for fleas in her improvised kennel. No, there would be no excursion today.

The storm brought unexpected compensations. For, after breakfast, to console the boys for their lost trip, I led an expedition out across the gully to get yucca leaves for basket weaving.

A wet trip. Rudyard had thoughtfully suggested that Victoria come too, arguing that the more hands the more yucca leaves would be brought home. But Tanya, after one glance at the downpour (which Rudyard had assured her was "almost stopping") declined the kind invitation on Victoria's behalf. A duck, she said, might make the trip. But as for Victoria—

Victoria howled. "I wanna go! I wanna go! I am, too, a duck! I wanna . . ."

Rain shut down in a curtain and blotted the lamentations.

Rider, Rudyard and I floundered off into the sloshy greyness. There was a wind rising and as we crossed the gully it lifted in a whirling gust, driving the rain in chill sheets before it. Rudyard, half blinded, lost his footing, sat down heavily in the slick mud and shot like a toboggan to the bottom, half scaring to death a tiny cottontail that had been sheltering under an old mesquite stump. As the rabbit fled away into the mist and Rudyard picked himself up, sputtering, Rider voiced a triumphant shout:

"You've found clay!" he yelled, pointing to the deep, muddy track of Rudyard's descent. "Look, you've found clay. Now we can make some pots."

It proved to be true. Eagerly, his mishap forgotten, Rudyard clawed muddy fingers into the red, gooey streak that his fall had laid bare. It was clay all right. Not a very good clay—too much sand in it. But clay nevertheless. "You go on for the yucca leaves," Rudyard ordered. "I'll stay here an' dig out a whole armful. I want to make a tremenjus pot."

We left him squatting in the rain—a little brown ball of mud, with two muddy little hands, busily quarrying more mud. When Rider and I got back, lugging bundles of green yucca leaves, he had a great pile of the sticky stuff all ready. Happy and muddy and as soaked to the skin as any trio of all but drowned desert rats, we plodded homeward with our loot.

There are disadvantages in the use of green yucca leaves for basket making. Chiefly because they shrink and change shape as they dry. The right way is to season the leaves first. Or, if you need an especially pliable material, to prepare them as fiber and spin them into cordage. However, the green leaves are pleasant to work with. And if you make reasonable allowances for what you may expect in drying you can get quite serviceable results. We wanted to make baskets and to experiment with fashioning yucca sandals, which was the footgear the ancient Indians of these parts habitually wore. We decided to use the green leaves for both, even though cordage, for sandals, is almost a necessity. Still, it would do no harm to experiment.

Results were better even than we had hoped. For basket stakes there were enough willow twigs already in the house, left-overs from a previous handicraft session. And there were even several short lengths of yucca cord, that we had made some time before—just in case we happened to need them. Rider elected to make himself a hanging basket—"that would maybe do to hang up a potted cactus in." I decided to experiment with the sandals and Rudyard settled, with the big store of clay, to the fashioning of "tremenjus pot."

Work, if it be something in which one is really interested is the finest means of "escape" which life holds. We were soon so absorbed in our jobs that we forgot all about the rain, which poured from the eaves; and we did not hear the trumpeting of the wind, which skirled drearily through the cottonwoods. The little tin stove, round which earlier in the morning Tanya had set pans of bread to rise, threw out a cheery warmth. Thomas, the yellow cat—he who had taken the place of Tibbets, who never returned—sprawled on the floor and dreamed. Victoria got out her dolls, propped them in a row against the wall and started in to teach them to read—from an old magazine held upside down.

A cheerful, companionable half-silence settled over everything—quiet which was patterned by the soft rustle of busy fingers weaving yucca leaves and by a low, intense series of agitated puffs and grunts as Rudyard laboriously rolled out lengths of moist clay and coiled them down with much squinting and nose wrinkling, on his great pot. Tanya came and softly took away her loaves after a while, and soon the warm odor of baking bread drifted through the house. Victoria with her pet doll clutched tight in her arms had gone to sleep beside the cat. Peace reigned—and industry. The weavers wove on.

Suddenly there was a hideous yell—a shriek so unexpected

and startling that I jumped as though from an electric shock. Rider fell over backwards from his stool. The cat leaped for safety. Victoria woke, squalling in terror, and from the adjoining room Tanya came in a frantic rush. The air was suddenly hazy with whirling yucca stalks and hurtling pieces of mud. The space around the stove had, in a twinkling, become a tornado. And in the center of it all, when our shocked nerves had snapped back and our startled eyes would once more function, we beheld Rudyard, yelling like a mad Indian, leaping up and down furiously upon a shapeless mound of mud and hurling fragments of wet clay right and left against the wall. The "tremenjus pot"—which for a long while had been teetering perilously like the Tower of Pisa—*had fallen in.*

Pandemonium raged. Capable writers in such a crisis are wont to sigh tactfully, "Let us draw a veil . . ." But this was something over which no veil would have had any power. We would have needed a tarpaulin and several blankets. Rudyard has a slated future which lies along musical and art lines. And he has all the temperament. When things go wrong he tears his hair like any opera singer.

And this time he was tearing it with gooey, muddy fingers. And yelling at the top of his lungs. His dream had fallen; his heart was broken. The wonderful pot! It had collapsed in horrid ruin. And so much toilsome effort! And nose wrinkling! And laborious puffing! . . . Gone!—all gone into a shapeless mess. It was more than human nature could bear. And he didn't intend to bear it. Savagely, yelling incoherent weird words, he leaped up and down upon the wreck of his masterpiece, tearing his hair and pounding the squashy clay into the floorboards.

It ended after a while. After we had all made a concerted attack upon the artist and had practically gagged and hog-tied him and carried him off to be pacified by honey and new bread and many bribes—which included immunity from his task of helping with the dishes that evening. But the party was broken up and the weaving was at an end for that day. After we had cleaned up the mess of clay and collected the scattered yucca stalks it was time to light the evening lamp. It was still raining outside.

And it was raining the next day. And the next. But the battered clay was pressed again into service on a smaller pot and the yucca leaves held out. It is still raining. But you can see ragged breaks in the clouds over the mountains. Tomorrow there will be sun—the dazzling desert sunshine that always has a diamond sparkle after a rain. And the deep blue of the sky will be dotted by tumbled masses of billowy vapor dispersing like scattering fleets of white sailed ships towards the wire-sharp rim of the distant horizon. The storm is about over. And the yucca sandals are finished. And the hanging basket. AND the pot.

GROWTH

*Growth is such anguish. Who can say
What griefs each one has stored away?
Self rises uppermost in thought,
No deed is for its own sake wrought.
Each tendril of the soul unfolding
A world of agony is holding.
We see too crazedly awry
Life's spectral vision passing by.
And we forget—forget—forget—
Seldom ponder or regret.
We pause when we should hurry on,
We rush where angels halt and frown.
We do not learn! And yet we wonder
Why human hearts are rent asunder.
Each soul rebels and weeps and cringes—
Growth is a gate on creaking hinges.*

—Tanya South

Nuts for the Native Larder

By MARY BEAL

IF GOOD fortune has led you to the higher desert mountains, you have met with that distinctive member of the Pine family, the Pinyon tree. If you don't know it, let's scrape acquaintance with it now. There are two important nut pines at home in the desert—*Pinus cembroides* and *Pinus edulis*, but we'll note the necessary points of identification later and first follow up the Pinyon's line of human interest. Much local color centers around it, a picturesque ornament that sets off its utility in goodly fashion.

Compared with its numerous majestic relatives it is the runt of the family, seldom exceeding 25 feet, its usual height 10 to 20 feet. It furnishes very little shade, even when forming large groves. A Pinyon forest is open, the trees scattered rather widely apart. In true pioneer manner many of the clan venture into the most rugged environments pre-empting any convenient ledge where a bit of soil offers nourishment. Many a twisted, gnarly Pinyon have I seen among the crags and pinnacles of rocky ranges, clinging to precarious footholds, its roots often seeming to be embedded in solid rock.

Not one of the more imposing pines, it has been of first importance to life within its areas. Along the desert-facing slopes of the Sierra Nevadas, southward into Mexico, eastward throughout most of Nevada, into Utah and Arizona, the fruitfulness of the Pinyon has been a godsend to the inhabitants of the surrounding arid regions. Its sweet tasty nuts added richly-nutritious stores to the primitive pantry.

No more picturesque phase of early times among native tribes has been chronicled than the harvesting of the autumn Pinyon crop. A tenderfoot wouldn't expect much from such small cones, measuring $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long and almost globose, but the nuts take up at least half of that bulk, each oblong flavorsome morsel in its brown paper-shelled case $\frac{1}{2}$ to $\frac{3}{4}$ inch long.

The cones ripen their seeds in early fall of the second year but the provident Indian did not wait for the seeds to be released according to nature's schedule. They forced the green cones to open their scales prematurely by roasting them in huge bonfires, which put the human nut-gatherers several jumps ahead of the squirrels, jays, and other nut-lovers of the Pinyon belt. The nut harvest was important not only in the Indian's domestic economy; it was a gala affair, looked forward



Pinyon trees high up in the Providence mountains in eastern Mojave desert.
Photo by the author.

to from year to year. Along in September, as many members of the tribe as could travel set forth to the mountains, mostly on horseback, all in merry mood. From the well-chosen camping spot, all took part in the joyful work of gathering the toothsome crop. With long poles the nearly-ripe cones were beaten from the trees, gathered in large baskets or sacks by the women and children and dumped in huge piles, where the roasting fires were built, encircled by large stones.

It must have been a sticky dirty proceeding from start to finish. The trees may be the nuttiest of their family but they also have such a prodigal amount of resin that one can scarcely come in contact with any part of a Pinyon without taking on some of the sticky stuff.

In good years the trees are so prolific that the bountiful nut harvest not only supplied the Indians' needs but left a generous surplus for sale in accessible markets. Today this custom is carried on infrequently, the demands of necessity not being urgent. Fortunately there are always some whose wishful appetite impels them to make the pilgrimage. I have benefited more than once by such Pinyon excursions, thanks to the interest of my Pahute friend Katie the Basketmaker. John Muir pays high tribute to the nut pine as the most important food-tree on the Sierra, and calls it "the Indians' own tree," so highly prized that in early times they even killed white men for cutting them down.

Because of its small size the lumbering industry has had no interest in it, but in the days of the West's development it furnished timber, charcoal, fuel and rough fencing for mines and ranches.

The Pinyons are short-trunked and flat-crowned. They start out as shapely little spires, in traditional Christmas tree form,

but as they mature the tops flatten out, the divergent branches often crooked and drooping.

Pinus cembroides

Botanists give this species two varieties, *parryana* and *monophylla*, the latter by far the most common and listed by some botanists as a separate species, *Pinus monophylla*, which in common parlance is Singleleaf Pinyon. Its blue-green needle-like leaves (1 to 2 inches long) are borne singly, only one in a sheath. The Parry Pinyon as a rule has four leaves clustered in each sheath and is restricted to the dry desert slopes of San Jacinto and Santa Rosa mountains. *Monophylla* is the common Pinyon of the Sierra's eastern slopes and the high desert ranges of California and Nevada, less common in Arizona. The species itself, *cembroides*, is known as Mexican Pinyon, and carries its leaves in threes. It flourishes in northern Mexico and crosses the border into Arizona, New Mexico and western Texas.

Pinus edulis

This is the predominant Pinyon of northern and central Arizona and the most widespread, its range extending eastward into western Oklahoma and as far north as southern Wyoming. It has been reported in the New York mountains of eastern Mojave desert. Oftener than other species it grows in extensive "pure stands," giving large areas the appearance of huge apple orchards, especially in Arizona and New Mexico, where the nut crop still finds its way to market in sufficient quantity to be profitable to its Indian harvesters. The leaves, unlike those of the foregoing species, are not quite cylindric, are deeply channeled and their color more yellowish green.

PRIZE STORY

Desert Magazine presents the third in a series of prize-winning stories, which were selected in the personal experience contest conducted last July and August. Six other winners are scheduled for succeeding issues of Desert Magazine.



Johns Harrington at entrance to the tunnel leading towards the back wall of the secret cave.

Adventure in a Nevada Cave

An archaeologist doesn't always find prehistoric animal remains and ancient human clues—but it's a rare expedition that doesn't provide at least one adventure. Johns Harrington experienced his as he dug his way into the sealed room of a remote Nevada cave near the city of Baker, Nevada.

By JOHNS HARRINGTON

DARK, angry thunderclouds were rolling into sight above the opposite canyon wall. From the gloomy depths of Smith Creek cave I stopped my work to glance at the shadows which stole across the sun and darkened the juniper-spotted, rocky slopes. While reaching for another dust mask filter, I heard Old Man Thunder grumble to himself from somewhere up Dead Man's canyon.

My father and I were excavating this lonely Nevada cave near the town of Baker for the Southwest Museum of Los Angeles.

We hoped to find implements of America's first comers in layers of earth which also contained remains of such long-vanished creatures as the American horse and giant ground sloth, which wandered about on this continent 10,000 years ago, when water and game were plentiful on the lands which are now parched desert. So far, we had been fairly successful, as later reports from Cal. Tech., where we had sent bones for reidentification, assured us. Though there were plenty of prehis-

toric animal remains, human clues were on the short side of the ledger.

While Dad troweled and shoveled a pit in quest of century-old evidence, I tunneled in the dust which had collected against the back wall. Here might be the traces of man for which we searched. We knew that both ancient man and beast sought that part of the cave for protection against enemies and elements. Here, therefore, as a result of campfires, bones and an accumulation of debris, the cave had filled in comparatively quickly. Like a mining

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MAY

tunnel, my passageway had crawled ahead for 20 feet, but quarters for digging were cramped, and half the time I choked with thick, yellow cave dust.

Edging forward on my knees amid yucca thorns and boulders, I was kept in continual suspense as to the location of the rear cave wall. I hoped that I might find a sealed cavern. Ever since stumbling into a buried room one time near Reno, I'd had this ambition. First the ceiling would lower as though to meet the floor, and then it would rise again. Often the crumbling dust revealed various-shaped stones that were smoothed and blackened. Many creatures must have rubbed over them in bygone years, before the dirt had filled the back of the cavern. Close to the cave roof, where it met the twig-topped floor, a small partially filled animal hole led in the direction of the back wall. I hadn't noticed this at first. Where did it go? Our curiosity as to what lay behind that mass of earth increased.

After almost a week of toiling with rocks and choking with powdery dust, I gave the bank in front of me an energetic and disgusted scoop with my digging trowel one afternoon. This particular section of the deposit was less scattered with boulders, and the four-foot wall of loose earth collapsed with a soft thud. The choking cloud cleared from my tunnel with surprising quickness. Vaguely wondering about this as I edged forward on my hands and knees, I suddenly discovered that a strong current of air was rushing from the animal hole.

Apparently the slide of dirt had opened a previously-blocked portion of the burrow made by some rodent years before, and now an unknown cavern might be nearby. I was so excited about the chance of coming into a place which never had been explored that I dug with redoubled energy. Shortly after lunch two days later the bank and the interior end of my passageway softly slid forward. Revealed in the flickering yellow glow of my miner's lamp was a shadowy sealed room—a hidden cavern at last! As I dazedly looked up the slope made by the crumbling of the deposit, I saw by the light a second hidden chamber, with passages leading from it.

The heavy silence, interrupted only by the slight hissing of my carbide lamp, was oppressive. I felt the ghostly touch of the cold air on my face. There were hundreds of little footprints made by pack rats on the cavern floor. Aside from a few corn cobs and animal bones, there was no other indication that life had been present here.

I had to dig some more before we felt the entrance to the new rooms was safe. Then Dad and I took the short climb into the first 10-foot-square chamber. While waiting for Dad I flashed the miner's lamp into the corners of the next room. Eerie spots of blackness settled in the crevices. The shadows, fleet and grotesque, jumped forward and away with the movement of my light. We searched several more rooms

and almost half a dozen boulder-strewn tunnels without finding much.

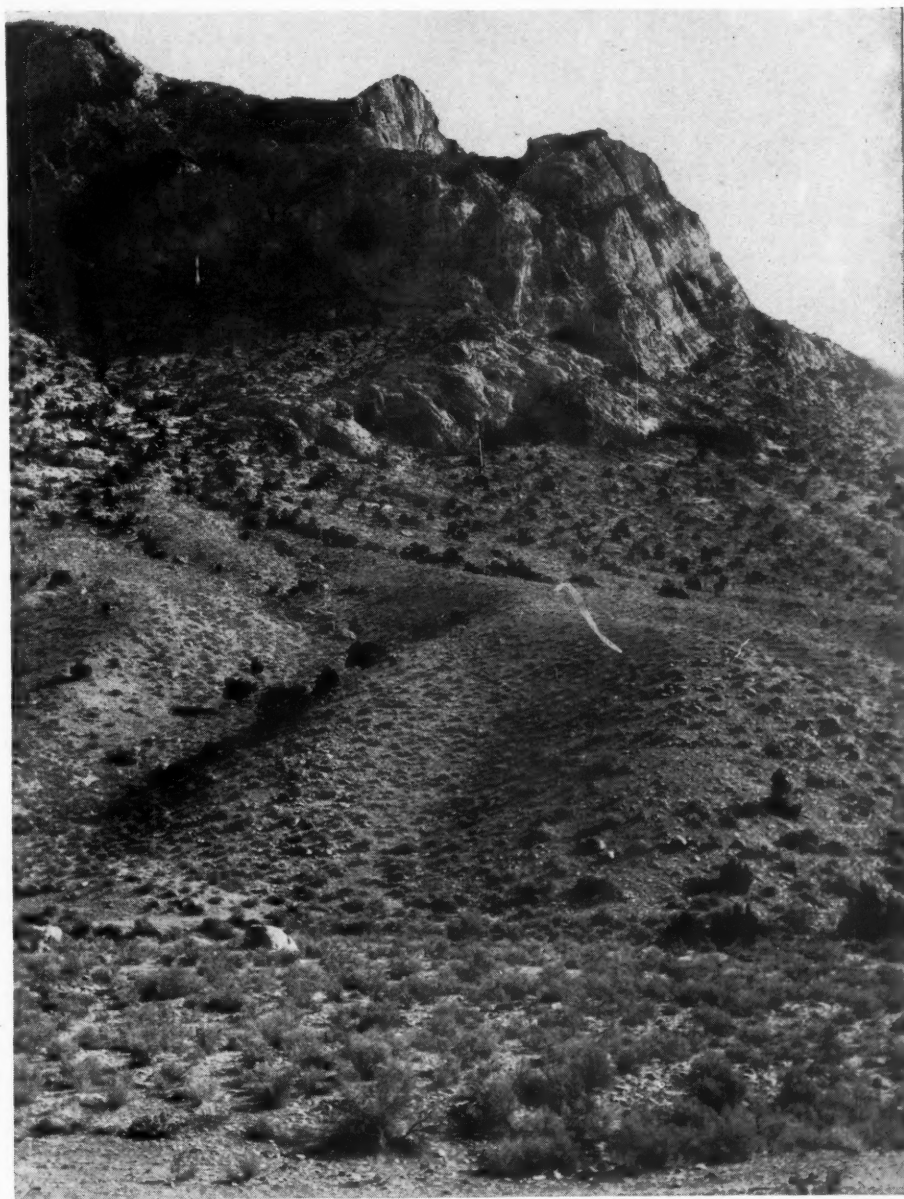
At the distant end of the cavern was a slit of light close to the floor. Wiggling along on my stomach, I passed under a rock curtain to find a giddy ledge which looked down upon the canyon floor about 1,000 feet below. The roofs of our camp tents looked like so many khaki shirts stretched out in the sun to dry.

Upon squeezing back into the sealed cavern, I lingered to dig a small test hole in search of specimens. Dad left, having concluded that the new chambers, though interesting, were too hard to reach for animals and Indians to have lived in them for any period. From a purely scientific basis, then, their significance was doubtful.

I had hardly started the little test pit before the miner's lamp began to hiss and sputter heavily. Knowing that it had plenty of fuel, I frantically shook the light

to clear the probable gas stoppage. The flame flared for a second, but in a few minutes died away entirely, and I was left in darkness. Slowly, carefully, hoping that my movements would not lead me to one of those rock-filled tunnels, I stepped in the direction of the passage which I believed led to the outside cave. Perspiration rolled down my nose as I crept and stumbled along in the cavern whose actual temperature was as cool as that of a deep-buried tomb.

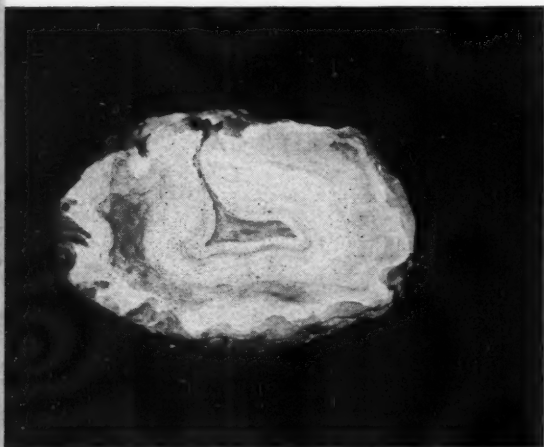
About 15 minutes later, though it had seemed much longer, I crawled through the excavation which had tapped the sealed cave. A fellow realizes a long-standing ambition by actually tapping buried rooms and risks his neck for 14-karat glamour and then discovers hardly a penny's worth of prehistoric clues. I'd had more excitement and found less than in many a cavern from California to Texas, but archaeology is like that.



Looking towards the cave entrance from the Harrington camp.

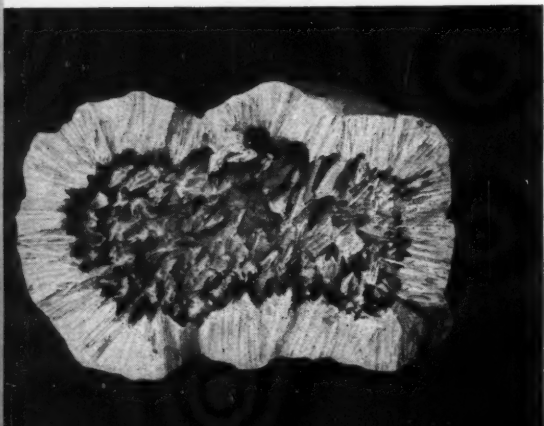


The Haunted Grotto. A natural composition in leather-brown, ochre red, mole grey and white. A prehistoric monster sleeps at the right foreground. Painted in wash from the original in the J. G. Talbot collection, Claremont, California.



Polished thunder egg showing a channel through which the silica solution reached the inside of the cavity. Water always chooses the shortest route. M. P. Yaeckel collection, Claremont.

A typical geode lined with quartz crystals. The specimen contained a few pieces of dry mud before it was broken. Author's collection.



Inside Story of Geodes

When "rockhounditis" first manifests its insidious hold upon the unsuspecting victim, the newly fledged rockhound usually turns to the lure of geodes and thunder eggs. How geodes "got that way" probably has remained a mystery to most of the ardent collectors—they are content to let a geode's origin remain a mystery, while cutting and polishing their wondrous and varied forms with loving care. But there is a certain species of rockhound—called "geochemist" among the scientific fraternity—who isn't satisfied to let a geode remain just a geode—he is determined to get to the bottom of the matter. Jerry Laudermilk tells what the geochemists have found out about that prized geode of yours up to the present day. And Jerry himself is trying to find some of the answers at Pomona college in Claremont, California. One of these days he may produce a respectable geode—right out of his laboratory hat!

By JERRY LAUDERMILK

Wash drawings of thunder egg and geode cross-sections by the author.

THE THING I was examining resembled a potato more than anything else. Obviously a mineral formation, it was heavy and doubtless hollow, for it rattled when I shook it. As any rock enthusiast will judge from this evidence, the "mineral potato" was a geode.

Geode is a very old term and means "earthy." Early mineralogists evidently supposed that all true geodes should contain some loose or earthy material inside. This material may be loose crystals of quartz, calcite, pyrite, dry mud or any of a number of minerals.

The earliest use of the word "geode" dates from the year 1619. Later, John Hill, in his "History of Fossils" published in 1748 uses it as a well known term and shows a colored plate with five engravings of geodes. Two of these are the form called "enhydros" or geodes containing water. The figures show the water gushing lavishly from the broken rock on to a table top.

The geode I had under examination was one of about two dozen a prospector had given me in Wickenburg, Arizona, several years ago. He had two reasons for bringing them to my attention. First, he knew of my great interest in all the curious things to be found in the desert, and second—and probably most important—he wanted to know how they had been formed. I didn't know as much about geodes then as I have learned since, but I was able to give him a general outline as to what had made them hollow and lined them with crystals.

These particular specimens were not very ornamental. They consisted of a thin shell of white opaque material not much thicker than heavy drawing paper. This

shell was almost filled with quartz crystals all pointing toward the center. They didn't quite meet and so left the center empty. This hollow space, which may be either large or small, is characteristic of all true geodes—otherwise they are "thunder eggs." Here, Mother Nature had left the laboratory door open, and any prowling geochemist who studied a few broken geodes finally would see through the trick of their formation.

The crust of a geode always is composed of silica and the inside is made up of the same substance although other minerals are frequently present. Silica is the general term for what is perhaps the most interesting compound with which a geochemist has to deal. At high temperatures, the hard black, glittering element silicon combines with oxygen in the proportions of one part silicon to two parts oxygen. As a result we have the mineral "quartz" or silicon dioxide in all its varieties. The pure element, silicon, never has been found native as a mineral, but in combination with other elements it makes up 59.77 percent of the earth's crust and next to oxygen is the most abundant element.

In the sun's atmosphere silicon occurs as free atoms flying around loose, shoulder to shoulder with those of oxygen. Although silicon has its greatest affinity for this gas, temperatures at the sun are too high for any permanent chemical compound to be formed between the two elements, so there is no silicon dioxide in the sun.

But to come down to earth which is a piece thrown off from a parent body of which the sun is a glowing remnant—at some time while our planet cooled from an incandescent state to its present tem-

Gels and Thundereggs

perature, a point was reached when conditions were just right for silicon and oxygen to combine with many other elements to form a great series of natural compounds, the "silicate minerals."

However, there was much pure quartz left over to crystallize out of the original granites and gneisses of the earth's crust as "primary quartz."

Pure quartz is a very stable substance and but little acted upon by the agents which cause rock weathering. I have seen rocks, particularly those on a rockslide near the top of Ontario peak in San Bernardino county, California, where lichens growing on granite had eaten away the feldspars and other minerals and left a glittering surface of untouched quartz crystals. In this case the erosive agent was carbon dioxide produced by the lichens' growth.

Under the action of heat, pressure, hot alkaline water and that powerful reagent, time, quartz acts as an acid and makes a long series of chemical compounds whose names are familiar to any collector. These are the orthosilicates, the metasilicates and all the rest of the silica tribe. When any form of silicic acid joins one of these combinations, it becomes liable to weathering. The silica may now be dissolved out of the silicate minerals and be redeposited from solution, as "secondary quartz." This secondary quartz may take the form of opal, chalcedony, flint, chert, jasper—any of the quartz minerals up to perfect prisms of pure rock crystal.

In all natural solutions, quartz is present as an alkaline silicate. Upon addition of an acid or an acid salt the silica will change into the colloidal condition and be present as a "gel"—and that is precisely what I mean. Take a teaspoonful of apple jelly—a colloid—and dissolve it in a pint of water. The apple jelly is still there in the colloidal state although the solution is perfectly fluid. Boil down the solution and your apple jelly will show up again in its true form.

Something very much like this takes place in nature with silicic acid gels ground water, part of which is "juvenile water." This is original water sweated out of the hot rocks deep down in the earth. It would seem that the term "old water" would be more appropriate. However, this is the water that holds the silica in solution as alkaline silicates.

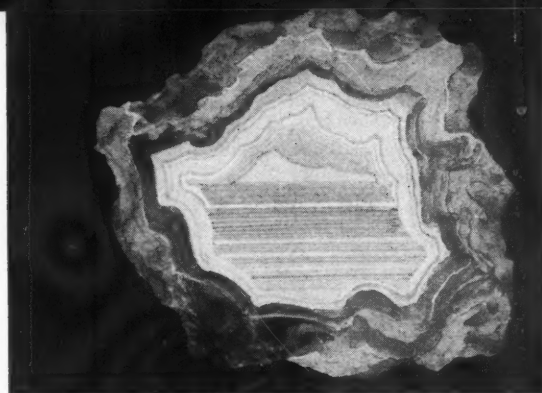
Rain or "meteoric water" is by no means pure. It contains traces of nitric acid produced by the action of lightning flashes through the air, carbonic acid, ammonium nitrate, chlorides and other chemicals. No chemist ever would think of using rain water as a substitute for distilled water—it's too dirty.

After this water has soaked into the ground, it takes up a further addition of carbon dioxide, nitrates, carbonates, sulphates, tannates and a whole string of other substances which give it a slightly acid reaction. When such acid water comes into contact with an alkaline solution containing silicic acid, the silica is precipitated as a gel, although, as in the case of your apple jelly, the silica may appear to be in perfect solution. Certain hot springs, like those of Yellowstone park and in Iceland, throw out their silica as sinter—practically pure opal. In other cases the silica gel lingers in solution beneath the water table and it is here that geodes are formed.

One of the names for geodes is "potato stones" since frequently they are dug up from loose soil just like potatoes, have a roundish shape and in some cases show small pits that resemble the eyes of a potato. Examination of the outside of a geode sometimes will show evidence of their once having filled cavities in lava. Some specimens have fragments of the original matrix clinging to them. Geodes also occur in limestone and other sedimentary rocks but since the only kinds I have studied are from a lava matrix, I will confine my discussion to this type.

The natural question to ask here is "How did the geode happen to form in the lava matrix?" Well, it is quite the rule for lava to be filled with gas bubbles ranging in size from microscopic pores to large vesicles. These were made by steam while the lava was still soft. The lava matrix, like nearly all types of rock, is more or less permeable to water and the chemical substances it may hold in solution.

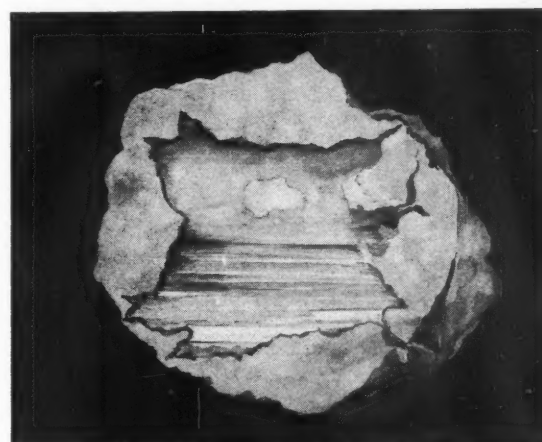
This permeability of even very dense rocks was proved by Dr. A. R. Whitman of the University of California at Los Angeles in 1927. He performed some ingenious experiments with holes drilled in a large block of marble. Under controlled conditions of moisture and temperature, the central hole, which was about six inches deep, was filled with a saturated



The Iceberg. A fortification agate in shades of leather-brown, cork color, grey, tan and white. M. P. Yaeckel collection.

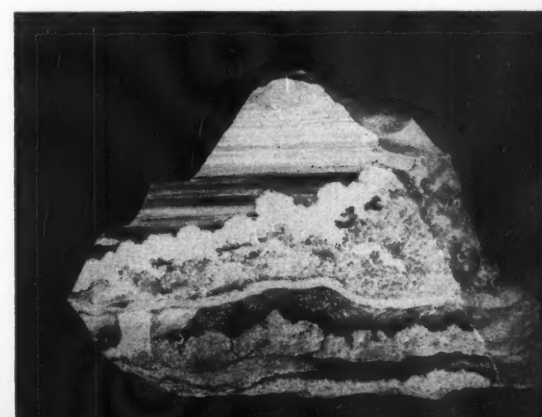


Scene on the Planet Venus. A surrealist's dream in grey, blue and white. J. G. Talbot collection.



Moonlight on the River Styx. A crazy and beautiful composition in leather-brown, navy blue, pale blue and white. Talbot collection.

Seascape in light green, deep sage-green, ivory and white. A naturally colored green agate thunderegg. Talbot collection.



solution of potassium iodide, a chemical easily detected in traces. The other holes were filled with distilled water. After eight months iodine was found in all the other holes. The experiment later was performed using a block of granite. In both cases the potassium iodide solution actually soaked through the solid rock, just as sea water would soak through a chunk of waterlogged wood.

These experiments indicate the way in which water containing silica migrated into the cavities—it simply soaked through the walls. In cases where cracks existed the water took that course as the easiest way in.

For a long time geochemists felt certain that the silica which had formed geodes was originally present as a gel but the evi-

entrance on the Italian side, soft, jellylike masses of silica were found in place in a crack about four inches wide. An account of this important find was given by Dr. R. E. Liesegang. The silica gel was associated with hot water, just as had been suspected.

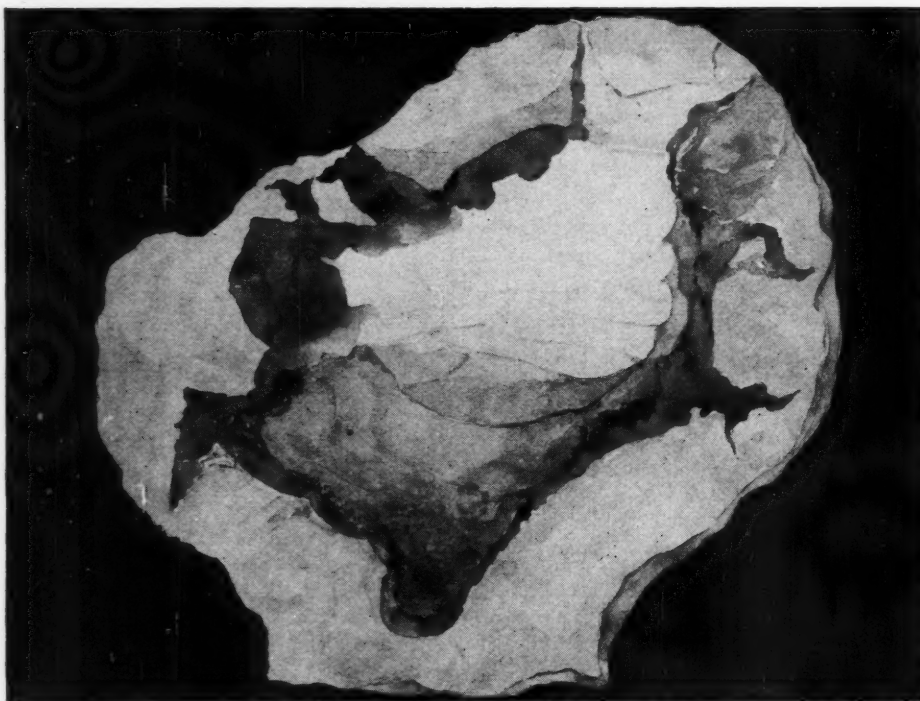
Here, a geochemist has to use the word "probably" and, since the science of geochemistry today is in about the same condition as the geography of Africa was before the time of Stanley, I shall have to make free use of the word for the next few paragraphs.

This is the logical place to ask, "Why didn't the silica solution simply filter into and out of the cavities without leaving a concentration of gel?" This is an example of the many problems that make geo-

periments since have been made, and opal, chalcedony and perfectly crystallized quartz have been produced by synthetic means, sometimes after a lapse of only 53 hours. So it is impossible to say now, just how the silica behaved while any geode was forming, or how long it may have taken to make a geode the size of a tennis ball. It may have taken centuries or decades. Since most of the geodes found in the desert are from lavas only a few million years old, their formation was probably rapid, in a geological sense.

Another geode-like formation is the "thunderegg." This term might be translated as "solid geodes." Here, silica has been built up layer after layer until the entire cavity has been filled. The colloidal silica in this case has been laid down in small amounts at a time—for this reason: 20 cubic centimeters of sodium silicate, a little better than a tablespoonful, will make 220 cubic centimeters, about one and a half teacupsful, of very stiff gel. But when this gel is dried out and the pure silica separated this will weigh 7.840 milligrams, which corresponds to a sphere of chalcedony only three-fourths of an inch in diameter. So, no matter how much gel Mother Nature put into her jelly molds, she never could pack in enough gel at one operation to make a geode or thunderegg the size of a tennis ball.

A thunderegg may consist entirely of



Snow clad mountains in pastel shades of pink, lavender, blue-grey, greyish white and white with a few flecks of red. Talbot collection.

dence was all circumstantial. No one ever had seen an occurrence of silica gel as a mineral. Microscopic examination of thin sections showed certain features such as evidence of shrinkage that were hard to explain in any other way. The fact that geodes nearly always showed the presence of much water as a constituent of the rock itself and that some types (those "enhydros" I mentioned in the first paragraph) contained free water apparently squeezed out of the crystallizing gel, confirmed this suspicion.

Finally, the question was settled through direct evidence. During the drilling of the Simplon tunnel through the Alps, at a point about 983 feet from the

chemistry the fascinating science it is. Probably, as the solution penetrated the walls of the cavity, a layer of silica was deposited as a thin film which later changed over into opaline quartz. Such hollow cavities with just the beginnings of geodes are rather common, and there is evidence that these first layers of silica may have acted as promoters for formation of subsequent layers of opal, chalcedony and in many cases of pure rock crystal. These minerals may have been the result of slow crystallization from a dilute solution.

In 1884, P. Schathautl, a worker in geochemistry, made the secondary quartz artificially by heating a solution of silica gel in water under pressure. Many such ex-

DESERT QUIZ ANSWERS

Questions on page 14.

- 1—Cahuilla Indians.
- 2—Agnes Morely Cleaveland.
- 3—Built as residence of Col. Boyce Thompson.
- 4—Dumortierite.
- 5—Blue.
- 6—Havasupai.
- 7—Hilda.
- 8—Much-photographed palm tree in Andreas canyon, San Jacinto mountain.
- 9—Enchanted Mesa.
- 10—Yuma, Arizona.
- 11—Black with orange markings.
- 12—Nevada.
- 13—Garnet.
- 14—Indian trader.
- 15—Washingtonia palms.
- 16—Legend, that he who drinks of its waters never again can tell the truth, and he will always return to it.
- 17—Gopherus agassizi.
- 18—Canyon de Chelly.
- 19—Basket-making.
- 20—Twentynine Palms.

bands of opal, chalcedony and quartz built up in zones and perfectly white, but of different degrees of opacity. Frequently, the white occurs in bands or patches, the rest of the thunderegg being red, brownish or yellowish due to hydroxides of iron or manganese. Other colors occur more rarely—green, sometimes due to nickel, and another shade of green due to tiny particles of the mineral "chlorite" which owes its color to iron. Blue is the result of structure, like the color in a blue eye, the blue of a blue bird's feathers or cigarette smoke seen against a dark background.

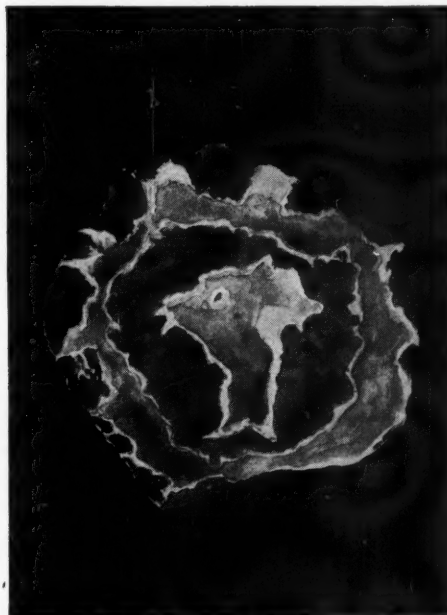
Agate and true onyx frequently occur in thundereggs. The white opaque bands show from their chemical reactions that they are harder and much less permeable than the opaline zones. This also can be seen when the polished surface is held slantwise toward the light; the opaque zones are usually in higher relief than the duller bands.

The cause of the zoning in agate, whether from a geode or thunderegg, is another of those things geochemists have not yet de-bunked. It might be supposed from a casual examination that they are the result of slow evaporation through the walls of the matrix or that they were formed by the slow deposition of microscopically fine sediment held in suspension. Careful examination with a lens shows both theories to be wrong. Many thundereggs show both circumferential zoning (like the layers of a sliced onion) and horizontal banding. Where the bands meet the zones, the angles are sharp and without the slightest indication of a "meniscus." A meniscus is the up-crawl at the edge of a surface of a liquid where this meets the wall of a solid container. You can see a good example of the meniscus by simply looking at a glass half full of water. For about one-sixteenth of an inch the surface bends upward so that the surface is concave.

In the case of the bands in thundereggs, something else is indicated. This is known as the "Liesegang effect"—the rhythmic precipitation of an insoluble substance with a gel. Dr. Liesegang performed some remarkable experiments with silica gel contained within cavities surrounded by semi-permeable membranes which he prepared by simply removing the contents of an egg through a small hole at one end and then dissolving out the calcium carbonate from the shell with dilute acid.

In his experiments he treated his gels first with certain chemicals which in con-

tact with a second reagent would produce a colored precipitate and then suspended it in the second reagent. Results were not



The Goat. Red, blue and grey. Talbot collection.

what might be expected. There was no uniform coloring of the gel throughout, but the precipitate had been deposited in



Canyon Brook. A wild and beautiful natural picture in redwood-brown, brick red, blue, white and chestnut brown. Talbot collection.

zones separated by colorless bands. By changing the concentration of his solution and varying the position of the container

which held the gel, he was able to produce nearly every type of pattern to be found in natural agate.

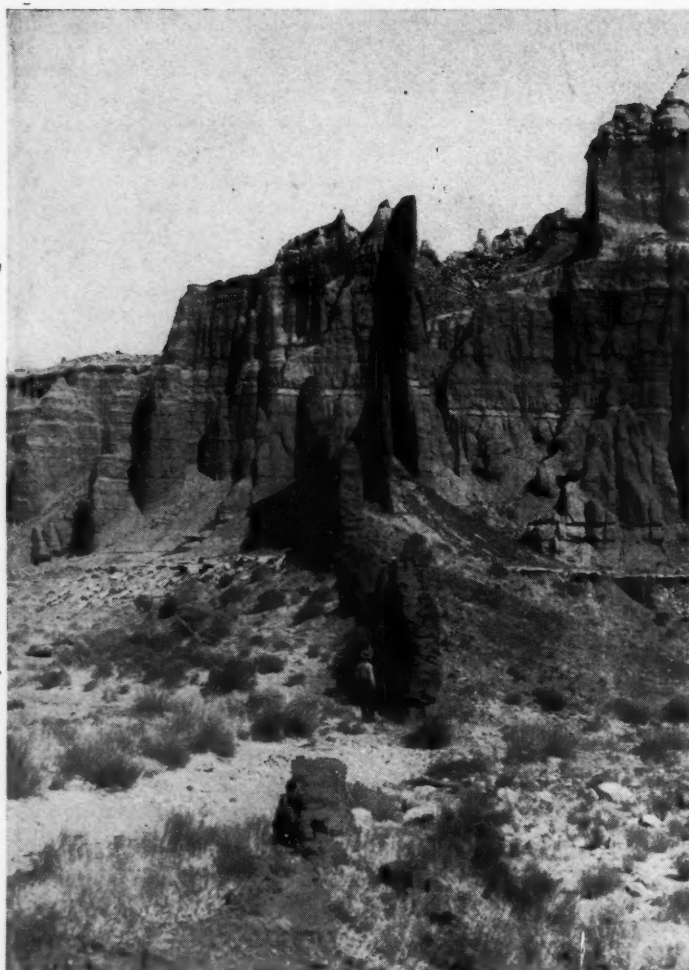
Although many thundereggs show beautiful natural colors, some of the striking specimens seen in collections are artificially colored. Agate easily may be stained with aniline dyes just as a section of wood might be dyed. Some of the lurid purples and greens are produced by this method. The blue specimens generally are made by first treating the slab with a solution of an iron salt and then soaking it in a solution of potassium ferrocyanide.

Lapidaries in ancient times colored agate by boiling it in honey and then baking the slab in an oven until the sugar was scorched to the various shades of red or brown considered most beautiful. This art probably originated in India or Arabia and for a long time was considered to be a great secret. But a modification of the method was re-discovered in Germany during the Middle Ages—they used "oleum" or sulphuric acid as the carbonizing agent instead of dry heat.

Hill, in his "History of Fossils" describes another art of agate staining practiced by German lapidaries. The coloring was done in such a way that part of the rock would be left in its natural color. By this method, figures of birds, animals—almost anything could be made. Although natural images of animals, plants, and even scenery often occur and are rather common, many of these artificially decorated agates were palmed off on wealthy collectors as natural products. Hill mentions a German prince who had many of these fake wonders in his museum. An Englishman finally discovered the secret of the German method and for a price would furnish his client with his own portrait in the natural rock.

It is likely that these spurious wonders were made by a method like that used in dyeing *batik*. This process consists in painting out with hot wax the areas to be left in their own colors. The dye will not penetrate the waxed areas and when it is finally removed the protected area will remain its original color.

A great deal of work remains to be done before the loose ends of the geode and thunderegg question can be twisted into a complete scientific yarn. Some of the problems such as the *why* of silica gel concentration in cavities from dilute solution and certain aspects of the Liesegang effect are now being attacked in my laboratory at Pomona college, but it may be years before I can make a respectable geode.



At the base of this cliff the main wall is flanked by two thin parallel walls, one less than two feet thick.



These black walls can be traced for many miles across the desert, generally running north to south.

We Found the Walls of Jericho

Charles Kelly, writer of this story, believes the accompanying photographs are the first published pictures of one of the most interesting geological formations in Utah. It is a region that perhaps you and I will want to explore at some future date when gasoline and rubber may again be purchased in unlimited quantities at any service station.

By CHARLES KELLY

Map drawn by John Hansen.

LAST July a group of us stood on a high shoulder of Thousand Lake mountain in Wayne county, Utah. Below us, to the southeast, east and northeast, was spread a mighty panorama of wild desert country broken by cliffs, canyons, reefs and ridges, all colored in various shades of red, orange, buff, tan and grey.

We were looking at an area of 5,000 square miles in which there was almost no drinkable water and only one ranch and one road, both located near the foot of the mountain.

On the desert below and perhaps five miles from the mountain's base, was a series of cliffs and canyons eroded out of bright

red sandstone in architectural forms resembling great castles and cathedrals. Interested in their photographic possibilities I was examining them through binoculars when I discovered a thin black wall cutting through one of the high cliffs.

"What's that black stuff that looks like a wall?" I asked Bill Jensen, our guide.

"They're what we call the Walls of Jericho," he replied. "There are several walls like that one running mostly north and south through that red rock country. You can trace some of them for 50 miles."

"Could we get near enough in a car to take pictures?" I asked.

"No," Jensen replied, "there's no road out there, and it's too hot to go into that country on a horse. Besides, there's no water. You better wait for cool weather."

I took Jensen's advice and waited impatiently until September, when Ernest H. Lyons, Jr., happened along. Lyons, who lives in Chicago, had just finished a pack trip through the Henry mountains where he had been making colored movies. He liked rough country and tough trips, so when I described the country below Thousand Lake mountain he was anxious to see it.

From Fruita, Utah, we drove to Loa, then five miles north to Fremont. Continuing northeast on the Price-Loa highway we

turned right at a forks marked "Thousand Lake." At another fork near the mountain's summit marked "Elkhorn Ranger Station" we turned left and soon dropped down the steep eastern face of the mountain to Jeffries ranch, near its base, where we spent the night.

Early next morning we started again on a rough desert road leading to an abandoned gas well 10 miles east of the ranch. Passing a fork which turns left to Emery, we continued on past an old wild horse corral to a low hill surmounted by a small square butte. Here we left the car and prepared to make the rest of the trip on foot. We decided not to encumber ourselves with lunch, and since the day was cool, carried no water.

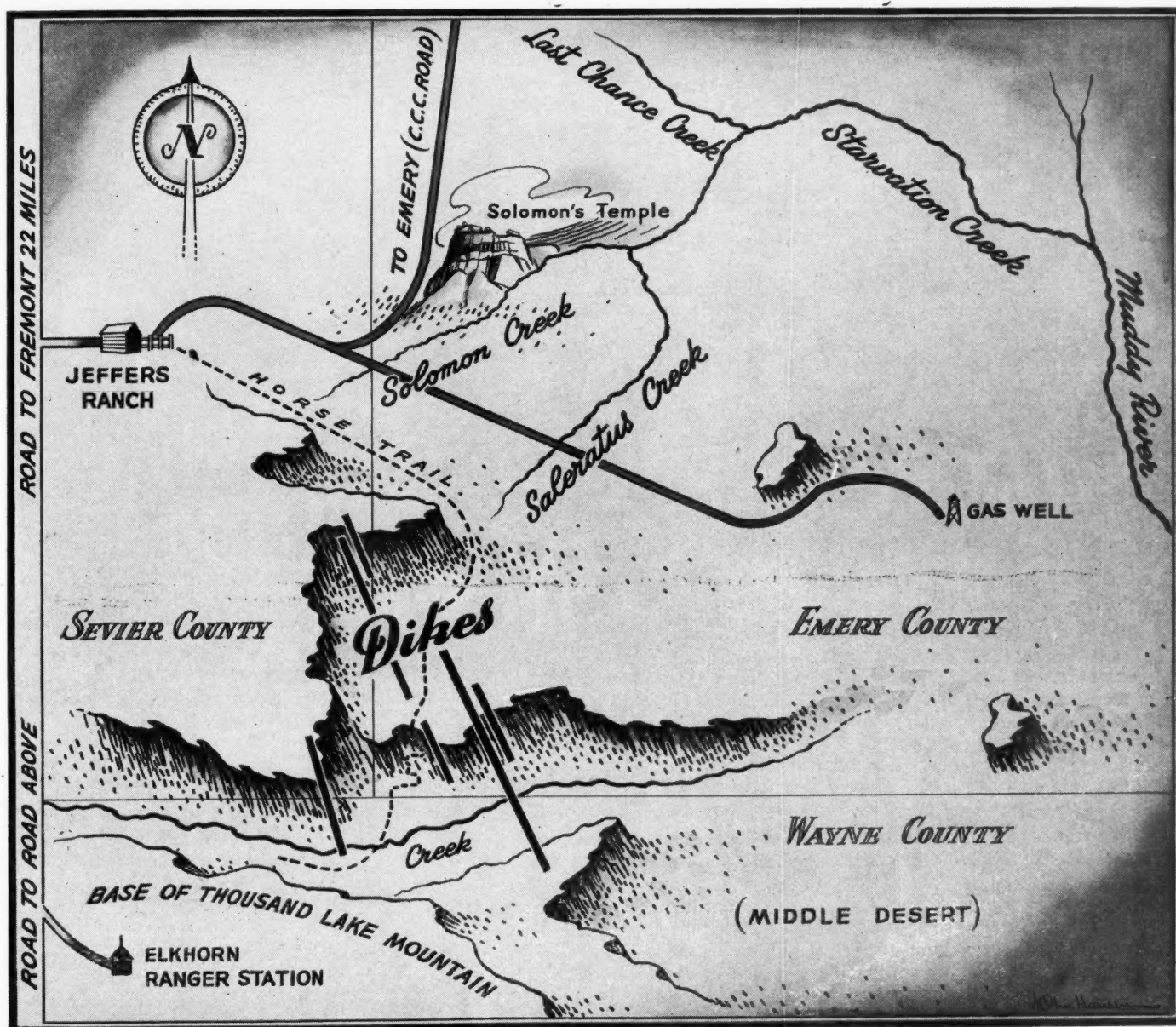
About a mile south of us a long finger of red cliff extended eastwardly from the mountain. The desert was covered with loose sand, dotted with tufts of bunch grass, which made walking difficult, but nearing the base of the cliff we found a hard packed stock trail. Following this around the eastern point we came into what is locally called the Middle Desert. Looking west along the south side of the long, narrow cliff, we could see, about a mile distant, remnants of black walls cutting the cliff at right angles.

The red cliff itself offered some interesting photographic possibilities. It rose sheer from the desert floor, without talus

slopes, to a height of 1,000 feet. The formation was Carmel sandstone which is relatively soft and weathers into symmetrical columnar formations resembling great cathedrals and Greek temples. One isolated mass is aptly called "Solomon's Temple," while another resembles the Mormon temple in Salt Lake City. Long fingers of sculptured cliffs extending into the desert gave the impression of avenues of great buildings, including some of modern design.

When we reached the black wall we found it much more spectacular than it had appeared from the mountain above. Completely bisecting the cliff it continued on across the desert for miles. In places it had been eroded almost level with the ground, but sections of it still stood, here and there, like the ruins of some man made defense works. Near the cliff, where erosion had been more recent, it rose to a height of perhaps 50 or 60 feet, with a width of less than six feet. At that point also it seemed to have been reinforced by two additional parallel walls, one of which was less than two feet in thickness. They were, in most places, as straight, true, and nearly as smooth as man made concrete walls.

Looking south we could see two more black walls running parallel with the first, perhaps less than a mile apart. A hike of two miles brought us to the edge of a secondary cliff, with



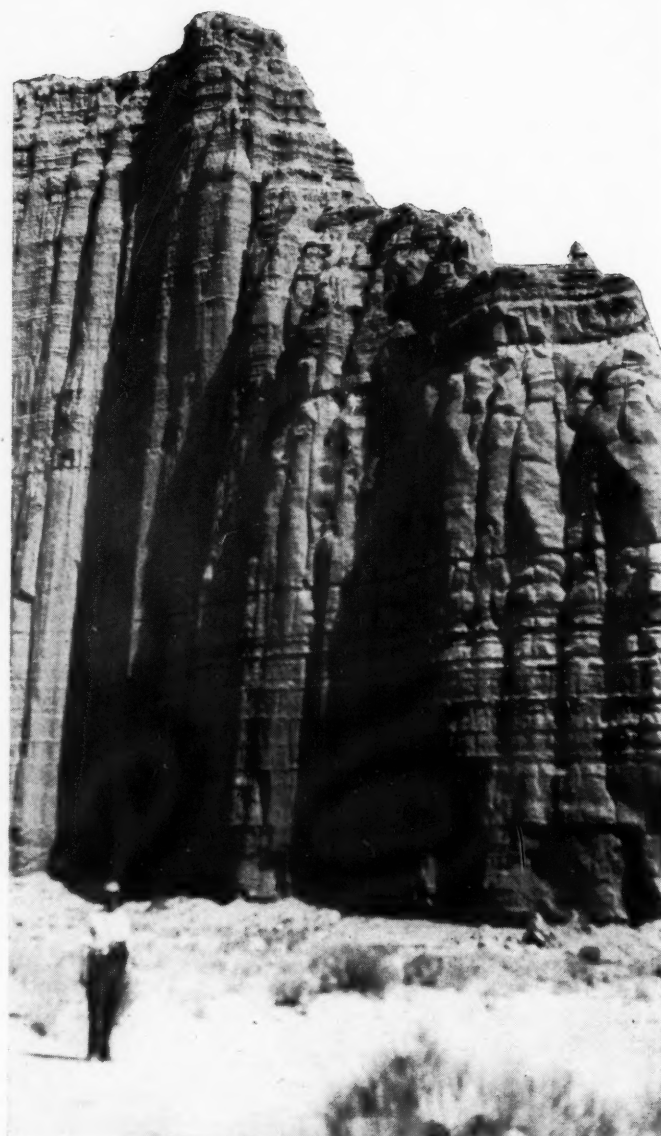
a deep valley below, through which ran a very small stream of milky, alkaline water. Here all three walls were well marked, standing in some places near the cliffs to a height of perhaps 100 feet. Near one were several small parallel seams of black rock, one of which was only two inches thick. We continued on, examining each formation, until we were stopped by an impassable cliff, then returned to the car, where we speedily emptied our canteen, but found ourselves too weary to eat.

A geological explanation for the existence of these black walls is comparatively simple. Thousand Lake mountain is covered with a cap of igneous rock several hundred feet thick. During the formation of that mountain, the great sandstone beds at its base were suddenly bent, forming many narrow crevices into which hot igneous matter was forced from below. When erosion later removed some of the sandstone, the harder black walls were left standing.

Such igneous dykes are not uncommon, but I know of no place where they are as spectacular as in the Middle Desert. Rising straight out of the red desert sand they contrast sharply with the surrounding red rock formations. They seem to be entirely out of place, and have the appearance of having been constructed by human hands. The cliffs of Carmel sandstone are here weathered into forms resembling great classic buildings, and the amphitheater in which this desert city stands seems to have been protected by three great parallel black walls. Bill Jensen described them perfectly when he called them the Walls of Jericho.

In these days of good roads, good cars and good cameras, it isn't often one can stumble onto a spot which has not been photographed previously, but Ernest Lyons and I believe we are the first to expose film in this particular section. Due to the limited time at our disposal, we were unable to do justice to the natural attractions of this desert spot, but we hope to return again some day to Jericho, "where the walls came tumbling down."

Type of erosion in the red sandstone cliffs behind the walls of Jericho.



Sez

Hard Rock Shorty of Death Valley . . .

By LON GARRISON



"Well, it started out all right," began Hard Rock Shorty, "an' my intentions was good, but seems like there's some folks think now I've delayed the winnin' o' the war by as much as a year or two."

"It all started last summer when I was out with one o' these here perfessers from up to the university. We seen a couple o' dust devils go whirlin' past an' this perfesser remarks that it was too bad all that energy was goin' to waste.

"I think about it some but wasn't nothin' I could do about it 'til here about six months ago when I read in the paper about the things we was

short of an' I seen right away what them dust devils was good for—pervided I could just catch 'em, o' course. Well, for a man with my ingenuity, that ain't such a job as it might seem like an' it wasn't long 'til I had seven 'r eight small samples of 'em all sealed up in milk cans. Had a idea at first they might be good to put the vacuum in radio tubes. But then I begun thinkin' about vacuum cleaners. Those darn things'd make good vacuum cleaners if I could just get a man to solder the hose on. That's all I was really lookin' for down in the city, but that ain't what I found.

"I lugged one o' my milk cans into the office of a place where they'd been makin' vacuum cleaners an' explained what I wanted. Well—seemed like they wasn't makin' vacuum cleaners no more, they was makin' somethin' that went on air-planes, an' they give me the bounce. But, about the time they got me started towards the door that milk can dropped an' the lid come off.

"That dust devil went buzzin' around there like a bee in a beer bottle, an' say—there was close to a acre an' a half o' office with lots o' desks an' girls an' men workin' at 'em, an' all the papers on all them desks got sucked up in one big funnel an' far's I know they ain't got things sorted out yet. They'd just started an' found that someway in the excitement the manager's order for groceries he was to take home that night'd got mixed up with a order for ten tons o' rivets an' a AAA-1 priority, an' I left."

NEW BOOKS-- on the Desert Shelf...

The Old West lives vividly and picturesquely in this month's book-shelf selection. Your boy in service will enjoy every one of them—for the adventure and romance, the thrill and color of the fabulous Southwest.

TOMBSTONE, Walter Noble Burns. Story of the "Town too tough to die," symbolic of the gun-toting, cattle rustling days in Old Arizona. As history it is accurate; as a story it holds you spellbound. 388 pp. \$1.29

THE BORDER TRUMPET, Ernest Haycox. Romantic adventure story of the 1870's, portraying army post life on the Arizona frontier. 306 pp. \$1.00

KIT CARSON, Stanley Vestal. One of the most exciting American biographies and one of the most illuminating of the Old West Books. 297 pp. \$1.50

SILVER STAMPEDE, Neill C. Wilson. Reconstructs colorful career of the ghost town of Panamint. Much first hand material. Intimate realistic style. Illus., index, endmaps. 319 pp. \$3.00

OLD BILL WILLIAMS, MOUNTAIN MAN, Alpheus H. Favour. Tempestuous career of a peerless hunter, trapper, marksman, horseman, who became more Indian than white. Map, photos, notes, biblio., index. 229 pp. \$3.00

WYATT EARP: FRONTIER MARSHAL, Stuart N. Lake. A thrilling account of frontier days and of a man who out-shot and out-thought the bad men of the toughest mining camps and cowtowns of the Southwest. 392 pp. \$1.65

SAGA OF BILLY THE KID, Walter Noble Burns. The Southwest's most famous desperado. His battles, capture, escape, loves, duels and death are here completely told. 322 pp. \$1.00

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BUTTERFIELD ROUTE TOLD IN NEWLY EDITED ACCOUNT

At the average speed of five miles an hour, Waterman Lily Ormsby, Jr., traveled from St. Louis to San Francisco in 1858 as the only through passenger on the first westbound stage of the Butterfield Overland Mail. Ormsby was a 23-year-old newspaper reporter on the New York Herald who made the trip in the capacity of a correspondent. Of the four rather complete contemporary accounts of trips over this route, his is the only one to record the westward journey.

It is written in a lively naive style, full of colorful detail regarding the country through which they passed, the conveyances, the accommodations and the other passengers. And he was continually aware of the significance of establishing a regular schedule to the West.

Although he had been forewarned of Indian massacres, rattlesnakes, heat, treacherous streams—and even grizzly bears which "envy, pedantry and ignorance had predicted for all passengers by the overland mail route," he arrived safely in San Francisco 23 days, 23 hours and a half after leaving St. Louis—one day and half an hour less than the time required by the company's contract with the government.

In contrast to the dire forecastings, he wrote, "I have found the deserts teeming with curious plants and animal life, the mountain passes prolific in the grandest scenery, and the fruitful valleys suggestive of an earthly paradise; while, if this trip may be considered a criterion, the alleged danger from Indians is all a bugbear."

Ormsby's account is given in **THE BUTTERFIELD OVERLAND MAIL**, edited by Lyle H. Wright and Josephine M. Bynum and published by the Huntington Library, San Marino, California. It was printed by the Val Trefz Press, Pasadena. The editors' footnotes are especially illuminating as to modern versions of the place names mentioned by Ormsby and explanation of historical and other allusions unfamiliar to the general reader. Index, 179 pages. \$2.75.

CHILD'S PICTURE BOOK INTRODUCES CALICO HORSE

CALICO, THE WONDER HORSE by Virginia Lee Burton is a vari-colored picture book in comic-strip style, depicting the adventures of "the smartest, fastest horse in all of Cactus Country." He prances and gallops from one episode to another in real western style. Written for ages 8-13.

Houghton Mifflin Co., 1941. \$1.00.

—Marie Lomas

WILD WEST STYLE IN MASCULINE COOKERY

Maurice H. "Smoky" Auerbach, self-styled national president of the Wild and Woolly Order of Hungry Buckaroos, has brought forth a little book long needed—a rip-snorting he-man cook book for men—and for men only.

HANDBOOK FOR RUMPUS ROOM CHEFS AND BARBECUERS is published by "Smoky" himself at San Francisco. "No frippery—no frills—no foreign languages," says the introduction, but sure as shootin', Chef Smoky puts in enough slang from the wide open spaces to frighten anyone milder than a chuck wagon boss.

"Snake a piece of bacon onto a couple thicknesses of paper," the recipe for "Sleeping Bag" directs. In the "Wrangler" you "scuttle the egg plant on top of the onion and then go to town with your meat chopper."

But if the cook book is unorthodox as cook books go in vocabulary, it is tops in food from "Homer Wilson's Twitch" to "Mule Tail," and right on through to the "Slum Gullion."

Index, 48 pp. 50 cents.

—Marie Lomas

NATURE'S INSPIRATION THEME OF BOOK

John C. Merriam, scientist, educator and president emeritus of Carnegie institution, Washington, D. C., has written a rich appreciation of nature in **THE GARMENT OF GOD** published in February, 1943, by Charles Scribner's Sons.

The author deserves a salute for giving Americans an avenue through which to view nature from an inspirational and religious basis. This is the fundamental purpose of his writing and in it he sees "man's love of the beautiful natural work in which he lives enriching his personal life, and even reaching out through the universal love of mankind for such beauty, to influence international affairs."

Grand Canyon serves as one of the examples of his thesis. Of the canyon he declares, "It is one of those features or situations through which an educating and stimulating influence may be exerted. The contribution of value is so great, and the elements in such marvelous balance with reference to one another, that every effort should be made to see that they are protected from modifying or destroying influences, and that for those who visit the area there may be both opportunity to discover the things of significance and to see them in the most effective way." 162 pp. \$2.00.

—Harry Smith

IMPORTANT ZUNI INDIAN WORK IS REPRINTED

For the collector of desert books, **MY ADVENTURES IN ZUNI** by Frank Hamilton Cushing and illustrations by Fanita Lanier, is a bit of unexpected good luck. It is reprinted from the "Century Illustrated Monthly Magazine" of 1882-1883 by the Peripatetic Press, Santa Fe, New Mexico.

While the author takes his reader deep into the daily lives of the Zuñi the artist unfolds their story in mid-pages and margins by line drawings, color and authentic Zuñi design. Delightfully told, this drama of Indian civilization is entertaining and yet scientifically presented for the highest accuracy.

The author was one of the first scientists to live the life of an Indian. The introduction by E. DeGolyer tells his story.

The book is bound in silver and turquoise blue. 178 pp. \$7.50.

FIRST RECORDING OF MINE SONGS AND FOLKLORE

When Eduardo Gallegos was playing at the El Morro theater in Gallup, New Mexico, an Italian miner came backstage to ask if he would write a song for the miners' celebration. Gallegos scribbled a song, "El Minerito," (The Little Miner). Not only is it still sung in the coal camps of New Mexico, but this month it wins a place in

one of the most distinctive books ever compiled on the mining industry, **COAL DUST ON THE FIDDLE**, by George Korson, published by University of Pennsylvania Press, Philadelphia.

The book is a rich collection of stories, legends, folklore, sayings and heretofore unwritten history of the bituminous industry. There are the tales of the superstitions of miners, the "Tommy Knockers" who hide themselves in pockets and crevices to help or hinder the miners at their work (the forerunners of the gremlins), and the story of the belief that it is disastrous for a woman to visit a mine, including instances which appeared to substantiate the superstition.

There is a chapter on miners' pets, the company store and other chapters with a wealth of mining lore and philosophy under the headings of Air, Earth, Fire and Water.

Mr. Korson gathered his material first hand. Over a period of years he went around to the camps, talked with the miners and recorded their songs on a portable recorder. Thus he has preserved the various dialects and intonations of the principal regional groups while in his book he has assembled and brought forth for recognition a type of American folklore which until now has gone unheralded.

455 pp. \$3.50.

—Marie Lomas

NEW MEXICO RUINS COME TO LIFE IN HEWETT BOOK

Here is a book written about archaeology which the layman can enjoy and appreciate. It is written by one of the foremost living archaeologists, Edgar L. Hewett, director of the School of American Research. And it is written about one of the most fascinating areas of the Southwest—the Chaco Canyon and its prehistoric Indian ruins in New Mexico.

In **CHACO CANYON AND ITS MONUMENTS**, published by the University of New Mexico, Dr. Hewett has visualized the life of those who once lived in this picturesque little valley and who left the remains of their remarkable residential and ceremonial buildings eight to ten centuries ago.

They had no written history; their civilization was observed or recorded by no other race, for the height of their development had been reached before invaders arrived. Yet, under the eye of the archaeologist, the very "stones come to life." The evidences left have been so carefully pieced together that we can determine with fair accuracy not only the original appearance of their buildings but their everyday life, their water problems, their ceremonial customs and the approximate dates their 12 large community houses were built. Profusely illustrated. Map, index, 234 pages. \$2.50.

A Yardstick of Efficiency . . .

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HERE AND THERE... on the Desert

ARIZONA

State Ends 20-Year River Fight...

PHOENIX—After a conference in Washington, D. C., Charles A. Carson, attorney for Arizona Colorado River commission reports Harold L. Ickes, secretary of the interior, will cooperate in giving Arizona contracts for Colorado river water. The bill which opened the way for such contracts as well as for later ratification of the Colorado River compact, was signed March 26 by Governor Sidney P. Osborn, ending Arizona's 20-year fight over use of Colorado river water. The bill will entitle Arizona to the same amount of surplus water per year as California, plus 2,880,000 acre-feet from the main stream and all the water from the Gila. Action was urgent at the present time because of a proposed water allocation treaty with Mexico. A committee representing the basin states and the federal government was scheduled to meet April 14 in Santa Fe, New Mexico, to discuss the proposed treaty.

Easter Services to Be Broadcast...

GRAND CANYON—At the Shrine of the Ages, overlooking the Grand Canyon, Easter Sunrise services were scheduled to be broadcast to the nation April 25, with Right Reverend E. L. Parsons, former Bishop of the Episcopal Church of California, delivering the sermon and the A Capella choir of Arizona State Teachers' college of Flagstaff furnishing the music. J. Howard Pyle is to give a new and different picture of the Canyon from the floor of Havasupai canyon, by the only telephone line out of the Canyon's depths.

Guayule Yields 24 Percent Rubber...

LITCHFIELD PARK—The highest rubber yield yet obtained from guayule was from a plot near here, according to W. W. Wetzel, supervisor of the Arizona emergency rubber project. The Litchfield guayule planting, he said, has yielded 24 percent of its weight in rubber. Wild plants yield only one and two percent. Wetzel declared the present shrub would yield 700 to 900 pounds of rubber per acre in two years, 1,200 to 1,800 pounds in four to five years.

Arizona Moon Needs Blackout...

PHOENIX—The Arizona moon described in western novels really is that bright! But army fliers don't appreciate it. Colonel John K. Nissley, Luke Field commander, first to register a complaint, says it's too bright for students trying to get full benefit of night flying training. "It is stretching a point," said Nissley, "to call it night flying."

"Belling the Coyote" Works...

GLOBE—Ed Bowman, local rancher, has devised his own system of coyote control. Coyotes were over-running his range, preying on stock and game animals. He set traps, caught a number of coyotes, and "belled" one with a small goat bell. Apparently afraid of the belled coyote all the others promptly left the vicinity.

Japanese Volunteer Services...

POSTON—Announcement that 233 Japanese-Americans from this Colorado river war relocation center have volunteered for combat duty with United States army is made by the management. While awaiting induction the volunteers have been guests of honor at a series of banquets and parties given by their families and friends.

Arizona Population Gains...

PHOENIX—Arizona's population has increased 20 percent over April 1, 1940, federal census, according to March tabulation. Exclusive of military camps and installations the state population is now set at more than 600,000. Estimate was obtained from OPA records.

Pioneer Fort Builder Returns...

FORT HUACHUCA—Francis Mengoz, Tucson, aged 103 years, returned to this military post which he helped to build, after an absence of 66 years. Mengoz first arrived here with his ox team in 1877 to begin work on an adobe house, first officers' quarters constructed here. During his recent visit he was the guest of Col. Edwin N. Hardy, post commander, touring the old post site in an army jeep.

29
PALMS
INN

THE HOTEL AT THE
PALMS

FIREPLACE ADOBES
FOOD TO REMEMBER
SADDLE HORSES
BADMINTON
AMERICAN PLAN
Single \$6.00 up
Double \$10.25 up

Gateway to Joshua Tree National Monument
ROBERT VAN LAHR, Manager
Reservations — write 29 Palms Inn at
Twentynine Palms, Calif., or call any Travel
Bureau or Automobile Club.





HELPFUL HINTS—

IF YOU MUST TRAVEL

1. Travel during middle of the week instead of on week-ends.
2. Please buy your rail and Pullman tickets well in advance of the day you leave.
3. If plans change, please cancel your Pullman space promptly so somebody else can use it.
4. Use Pullman space to its maximum capacity. If you reserve a bedroom, compartment or drawing room, share it with friends or business acquaintances (and share the expense).
5. Buy round trip tickets. Buy your return reservations at the same time.
6. Travel light, and take into the train with you only the luggage you actually need on the train. Check the rest—24 hours in advance, if possible, to avoid delay.

*If we all cooperate, it will help to avoid
any necessity of rationing train travel, too.*

S·P

THE FRIENDLY SOUTHERN PACIFIC

913-A

The Desert TRADING POST

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue—actually about 1 1/3 cents per thousand readers.

MISCELLANEOUS

LAND OF SUNSHINE & OUT WEST edited by Charles F. Lummis. Complete volumes in wrappers \$2.00. Single issues at 35c post-free. N. A. Kovach, 712 So. Hoover, Los Angeles, California.

WANT—22 Calibre Short and Long Ammunition—Will pay \$100 per case—Distance no barrier—Cash waiting. Peerless Vending Machine Co., 220 W. 42 St., New York City. Wisconsin 7-8610.

TRADE—Nicely wooded cabin site, Cambria Pines, for well located Desert site. M. S. Palmer, Box 791, Santa Ana, Calif.

FOR SALE—12 beautiful perfect prehistoric Indian arrowheads \$1; 10 tiny perfect translucent chalcedony bird arrowheads, \$1; 10 perfect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spearheads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect saw edged arrowheads, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect queer shaped arrowheads, \$1; 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and including many rare shapes and types such as drill pointed, double notched, saw edged, queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood, Arkansas.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kellev, 4637 E. 52 Place, Maywood, California.

Karakul Sheep from our Breeding Ranch are especially bred to thrive on the natural feed of the Desert. For information write James Yoakam, Leading Breeder, 1128 No. Hill Ave., Pasadena, California.

REAL ESTATE

For Imperial Valley Farms —
W. E. HANCOCK
"The Farm Land Man"
Since 1914
El Centro — — — CALIFORNIA

Apaches Invest in Bonds . . .

McNARY—White Mountain Apache Indians, once the state's fiercest tribe, have invested \$200,000 in war bonds, according to Fred Banashley, vice-chairman of the tribal council. Most of the tribal funds are derived from sale of timber from reservation lands. Small amounts are obtained from hunting and fishing permits.

Cattle Ranches Sold . . .

PHOENIX — Four large Arizona ranches recently have changed hands. The 50-year old Long H ranch near St. Johns, containing 177,600 acres, was sold to Henry Platt and sons; 70,000-acre W. R. Blake ranch near Showlow was purchased by E. R. Chilcott, owner of Technical Products company of Inglewood, California; W. R. Blake, after selling the Showlow property bought 97,000-acre Charles W. Mickle ranch south of Hackberry; Arrowhead ranch at Lakeside was purchased by Marion Welborn, prominent Salt River valley operator.

Superstition Trek Out for Duration . . .

PHOENIX—For the first year since 1934 the Dons club voted to forego for the duration their colorful annual trek to Superstition mountain. The trek originated after publication of a series of articles by Oren Arnold, club member, concerning legends of the Superstitions. By 1942 more than 1,200 persons attended the event.

Arizona dentists will convene in Phoenix May 6, 7 and 8 for their annual meet, announces Dr. John Henry, president of the state association.

Tom Pavatea, widely known Hopi Indian trader and leader of Polacca, died March 11, aged 67.

Thirteen girls from six Indian tribes and races graduated March 14 from the school of nursing at Sage Memorial hospital, Ganado. They represent Navajo, Apache, Pima, Laguna and Comanche tribes and Spanish descent.

A collection of 150 Salt River valley pottery vessels has been donated to Arizona state museum, Tucson, by Mrs. Dwight B. Heard of Phoenix.

CALIFORNIA

Needles Now Plane Stop . . .

NEEDLES — Transcontinental and Western Air company has selected Needles as a fueling stop for transcontinental cargo planes. L. W. Goss, Pacific coast representative said they planned ultimately to use the field for passenger service. A 15-year lease, with an option for an additional 15 years, has been approved by the city council.

Airfield Paved with Gold . . .

PALMDALE—Pilots at Liberty field between Lancaster and Rosamond soon will be taking off from a field "paved with gold." The Tropica gold mine, owned by Burton Brothers, was closed down along with other gold mines by government order. But now the owners have contracted to supply crushed rock—and they figure a small amount of gold mixed with the rock should not detract from efficiency of airfield surfacing.

Dates Still Officially "Fresh" . . .

INDIO—Temporary respite from point rationing by OPA was given date growers in mid-March. Declaring their product was a non-processed food, in contrast to certain imported processed varieties, United Date Growers spokesmen said processed classification would be ruinous to the growers here. Dr. William T. Swingle predicted present annual national output of 15 million pounds will be increased to 225 millions. Heretofore United States has consumed less than half pound per capita; Canadians eat twice as many per capita as we do and the British three times the quantity.

New Heads at Museum . . .

PALM SPRINGS—Professor and Mrs. T. D. A. Cockerell of Riverside are taking virtual charge of the Desert museum, to relieve Curator Sam D. Hinton who is helping in the war effort at Torney General hospital. The museum will continue its program of Sunday field trips, exhibits and lectures. The Cockerells both have achieved recognition in scientific fields, and their outstanding motion picture films on natural history will be shown at the museum.

Wildflowers Blooming . . .

PALMDALE—Antelope valley is due for a fine wildflower season, but the show will have to be enjoyed mainly by home folks this year. Joshua trees were in bloom by mid-March and plentiful rain insured profuse flowering later this spring. The same flower report comes from Coachella valley, from Palm Springs to Indio.

Housing Contract Let . . .

TWENTYNINE PALMS — Contract for a 34-unit government housing project was let early in April to Brock and Sons, Los Angeles. Construction, which will cost \$68,745, is scheduled for completion in 90 days.

Trout Season Opens May Day . . .

BISHOP—Trout season is scheduled to open as usual May 1 in California, according to George P. Miller, executive secretary of the state division of fish and game. It is predicted that this year's catch will even exceed the record of last year.

Pioneers Hold Annual Meet . . .

INDIO—All officers of Coachella Valley Pioneer society were re-elected at the annual April meeting held at the home of Mr. and Mrs. Roy Harmon in Thermal. Officers are: Mrs. B. S. Boyer, president; Dr. June McCarroll, vice-president; E. N. T. Burnett, secretary-treasurer. During the all-day meeting, a number of pioneers recalled early days or read papers on historical episodes affecting Coachella valley. Among those contributing were Nina Paul Shumway, Dora King Cowan, Chester A. Pinkham and August Lomas.

Fishermen Almost Hook Alligator . . .

BLYTHE—Now they're finding alligators in Colorado river! Russell Campbell and Jess Coats, two well known, reliable citizens claim that while fishing about 30 miles north of Blythe they looked a large, live alligator right in the face, but upon approaching him, he made a submarine dive and disappeared. Possible explanation may be that Hal Oxnevad, deputy sheriff at Vidal several years ago, had a small pet alligator. When Oxnevad moved away he may have turned the 'gator loose or it may have escaped to the river.

NEVADA

Wild West to Live Again . . .

LAS VEGAS—The West will be wild again when the Elks stage their annual Helldorado May 27, 28, 29 and 30. Bewhiskered and gaily garbed citizens will enjoy the giddiest celebration of the year in typical frontier style.

Gold Hill Postoffice Closes . . .

VIRGINIA CITY—Historic Gold Hill postoffice has been closed after 82 years of continuous service. Although for years it held a first-class rating recent closing of gold and silver mines stopped most of its business. Virginia City and Silver City henceforth will handle the Gold Hill mail.

Nevada Leads in Growth . . .

RENO—Nevada had the greatest percentage population increase in the nation for the period April, 1940, and May, 1942, according to recent bureau of census report. Nevada's increase was exceeded only by the District of Columbia which recorded a 24.8 percent increase, while Nevada's was 17.8. Actual increase for the state was from 108,761 to 128,157.

Old Fort Will Be Museum . . .

LAS VEGAS—The Old Fort, on North Fifth street, will be restored and opened as a museum by the Daughters of Utah Pioneers, who have a 10-year lease on the historic building. It was built in 1855 by a band of Mormon colonizers, and is the oldest building in this area. Mrs. Illa Cram is chairman of the committee in charge of the project.

Wrangles Horses by Boat . . .

WINNEMUCCA — Almost anything can happen on a Nevada ranch, but 14-year-old John Boynton is the first to wrangle horses in a rowboat. Ranchers for miles along the Humboldt river, swollen to a dangerous high in March, were forced to move livestock to higher ground. Young John with a rowboat and a sack of grain coaxed one of the remaining Boynton horses near the boat, slipped a bridle over its head and guided the "lead" horse, followed by the others, to safety.

Sailors Will Come to Desert . . .

BATTLE MOUNTAIN—News of approval for a naval training center to be moved to the Carson Sink area was received from Senator James G. Scrugham. Details of the plan have not been released by the government.

Jackrabbit Seeks Bank Protection . . .

ELKO—One scared jackrabbit being chased down the street by a big red chow dog headed for the Elko bank. Startled patrons stepped aside as he scooted into the bank, with the chow inches behind. Two loops around the bank—and rabbit and chow headed outside for the wide open spaces.

Indian Runs One-Man Mine . . .

BATTLE MOUNTAIN — Johnny Blossom, Battle Mountain Indian, is contributing his share in the war effort by producing high grade tungsten from his one-man mine, 50 miles south of here. He recently delivered 12 tons of ore and is back on the job digging out more. The mine is located high on a mountainside, necessitating use of a sled and ropes to lower the sacked ore down a 1,300-foot mountainside. His first six-ton shipment netted him \$1,800.

Nevada livestock show and Elko county fair will be held in Elko September 4, 5 and 6.

NEW MEXICO

Hitler "Doomed" by Navajo . . .

GALLUP—Pvt. Clyde H. Smith, stationed at Camp Stoneman, California, doomed Hitler before he joined the army. Smith is known to thousands as "Sunset," one of the Southwest's foremost Indian sandpainters who has exhibited at two world's fairs and countless state and county fairs. The army camp reports that Sunset put the "hex" on Hitler with a sandpainting. "It has never failed me before," Sunset is quoted. "Hitler and his stooges are as good as goners since I made a sandpainting of them." Along with the potency of Sunset's sandpainting might be cited the record of his Navajo father who was decorated three times for bravery in the first World War. "Chief Feather," his grandfather, scouted for Kit Carson.

State Fair Set . . .

ALBUQUERQUE—New Mexico state fair is set for September 26 through October 3, according to commissioners. Emphasis will be placed on livestock and agricultural programs rather than entertainment. Horse racing will continue. An army show probably will be included, announced Harold B. Sellers, commission chairman.

Alfalfa Substitutes for Spinach . . .

GALLUP—If you have a patch of tender green alfalfa, don't worry about the spinach shortage. That's the advice of Roman Hubbell, veteran guide and trader of the Navajo country, who telegraphed Secretary of Agriculture Wickard to recommend alfalfa for our men in the armed services. He declared alfalfa was cooked like spinach at the early day trading posts to supplement pioneer diets.

State Losing Cactus Revenue . . .

RATON—Dr. H. V. Halliday, speaking before the Kiwanis club here, said New Mexico has been overlooking an important resource in the state's cactus plants. Halliday, whose hobby is collecting and photographing New Mexico cacti, explained that a truckload of cactus often sells in Texas for \$300 to \$500 and added that truckers virtually "steal" the plants, as the state receives no compensation.

GENUINE STEERHIDE HUARACHES

NO RATION COUPON REQUIRED

These rugged woven sandals that have brought cool comfort to so many thousands of American feet in recent years are still available for immediate delivery at no increase in price. Each pair is an original creation, beautifully handcrafted in natural beige leather that ages to a deep tan (also in white, plain weave). Send foot outline, mention shoe size. We guarantee a fit in any size for men or women.



Cattle Growers Elect . . .

ALBUQUERQUE—E. G. Hayward, Cimarron, was elected president of New Mexico Cattle Growers association at their March convention. He succeeds Tom Clayton, Separ. Among recommendations made by the body were revision of meat slaughtering quotas, production of more windmills, barbed wire and high protein feed, elimination of government subsidies and modification of rationing regulations for benefit of those living in remote areas. Albuquerque was chosen as the 1944 convention city.

Frontier Character Dies . . .

KINGSTON—Sadie Orchard, picturesque pioneer hotel keeper and one-time stage coach driver, died early in April, aged about 85. Sadie, who reportedly was born in England, came to Kingston about 1880 when it was a riotous frontier town. Here she married the stage line owner, Orchard, and for several years took her turn at driving stage. Later she operated a hotel in Hillsboro, where her genius in interpreting local news made her known to every lawyer, judge and many travelers.

Indian Jewelry Tax Exempt . . .

GALLUP—Indian traders and others handling merchandise made by Indians on reservations or in schools should cease collection and payment of the excise tax on such articles, it has been announced by M. L. Woodard, secretary of the United Indian Traders association, as a result of legal opinion obtained by that organization. The principal item affected is silver jewelry. A portion of Section 3446, Title 26, of the U. S. code Annotated was cited by attorneys to substantiate this interpretation.

. . .

Lions International will hold their New Mexico convention May 10 in Albuquerque.

. . .

New Mexico teachers will meet October 21 to 23 in Albuquerque.

. . .

Jack Cline, Fruitland, has been re-elected president of United Indian Traders association.

. . .

Julian Martinez, former governor of San Ildefonso pueblo and nationally known ceramic and watercolor artist, died under unknown circumstances in March. He is survived by his wife Maria, famed pottery maker.

. . .

Tom Charles, who was instrumental in establishing White Sands national monument, died March 21 at the age of 67.

UTAH

Western Governors Organize . . .

SALT LAKE CITY—An organization of governors of the 11 western states was formed at the governor's conference here April 9 and 10. The purpose of the group is to discuss problems affecting their states and to present their cases in Washington, D. C. Major problems at present include postwar planning, federal control of land and water, man power.

Bean Acreage to Increase . . .

MONTICELLO—Goal for Utah bean growers in 1943 is set at 14,000 acres, an increase of 96 percent over 1942. Technical specialists of soil conservation service will assist farmers in getting highest yield.

Horse Wins Contest with Man . . .

BLANDING—Leland Shumway, 26-year-old vanadium miner here, put an end to a long-standing argument as to whether a man or a horse has the most endurance. Cowboys generally, in this southwest Utah desert, believed a horse could cover twice the distance in 24 hours that a man could. Shumway didn't believe it. Arranging a contest, he started from Blanding at a run, with a horse and rider at a lope, headed for Bluff, 20 miles away. They were to keep going back and forth between the two points for 24 hours. Shumway conceded he was wrong about a horse's endurance, when he had to give up 20 hours later, after covering 65 miles to the horse's 140 miles.

Utah Wool Outlook Good . . .

SALT LAKE CITY—Utah's cash income from sale of wool in 1942 totaled \$7,941,000, an increase of more than one million dollars over the previous year. Wool brought 38 cents per pound compared to 32 cents in 1941. Outlook for the current year appeared somewhat brighter March 1, according to Edward C. Paxton, state senior agricultural statistician for department of agriculture.

Lions Convention in June . . .

VERNAL—Annual convention of District 28 of Lions clubs will be held here June 11 and 12, according to announcement by President Francis Felth. Edward Paine, president of Lions International, will come from Indiana to be guest speaker.

State Fair Set for September . . .

SALT LAKE CITY—Utah state fair will be held probably the first week in September, according to Sheldon R. Brewster, secretary-manager. Its first aim will be to honor Utah's servicemen. It will also aim to show the state's war effort, to encourage food production and to provide entertainment to relax war nerves.

ANNOUNCING . . . A NEW GIFT RATE

To give our DESERT friends full advantage of the special low gift rates now in force we are making this advance announcement of a **CHANGE IN RATE** to be effective **JUNE 1**.

The annual subscription rate will remain at \$2.50 . . . but after June 1 each additional year or gift subscription in the same order will be \$2.00.

But **UNTIL JUNE 1**, you may have your subscription extended, or you may send new subscriptions at the present extremely low rate of \$2.50 for the first year and only \$1.50 for each additional year or subscription in the same order.

Take advantage of the present gift rate NOW. No subscriptions received after June 1 will be accepted at the current discount rate. We shall be happy to give personal attention to your gift orders.

DESERT MAGAZINE
El Centro, California

MINERAL BOOKS . . .

There's no more fascinating a hobby than collecting minerals. For your education so that you can thoroughly enjoy this study, Desert Magazine has a complete list of books, a few of which are given below.

THE ART OF GEM CUTTING, complete second edition, Fred S. Young, gem-mologist. Contains information on cabochon cutting, facet cutting, methods to test stones, the value of gem stones and useful lapidary notes. Index. 112 pages. . . . \$1.50

GETTING ACQUAINTED WITH MINERALS, G. L. English. Fine introduction to mineralogy. 258 illus., 324 pp. . . . \$2.50

HANDBOOK FOR THE AMATEUR LAPIDARY, J. H. Howard. One of the best guides for the beginner, 140 pages. Good illustration . . . \$2.00

QUARTZ FAMILY MINERALS, Dake, etc. New and authoritative handbook for the mineral collector. Illustrated. 304 pp. . . . \$2.50

DESCRIPTIVE LIST of the new minerals 1892 to 1938, G. L. English. For advanced collectors. 258 pp. . . . \$3.00

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THE Desert MAGAZINE

El Centro, California

THE DESERT MAGAZINE

GEMS AND MINERALS

ARTHUR L. EATON, Editor

"BLACK LIGHT" PROSPECTORS CONTINUE SCHEELITE HUNT

Much energy is being spent at present in southern San Diego county, California, and in Baja California, Mexico, in the search for a paying deposit of the tungsten ore, scheelite. Experienced prospectors, armed with high power fluorescent lights, have spotted numerous places which show some surface indications of scheelite, and one deposit has been located in Baja California, which is said to run about 17 percent. This is now under preliminary development. Due to the beliefs and practices of the prospector, until the development of a mine is well under way, it is difficult to get any definite information either as to its location or the exact quality of ore.

EXPECT WYOMING VANADIUM TO SUPPLY AMERICAN NEEDS

The United States of America from this time forward may become self sufficient in the production of vanadium, a necessary item in the production of steel. Sublette Ridge, Wyoming, recently has been discovered and opened up for the production of strategic vanadinite by United States geological survey. United States formerly was able to produce only about one half of the necessary supply, but this new discovery in Wyoming is expected to make the country entirely self supporting in this important item.

LABORATORY-MADE CRYSTALS SHOULD BE CORRECTLY LABELED

Some expert chemists have manufactured in the laboratory and sold to numerous collectors very beautiful artificial crystals of nickel, copper, etc. Many of these artificial crystals have a real place in any collection, and the experienced collector both understands and appreciates them, but, in the interests of true science as well as those of simple honesty, the manufacturer should be especially careful to explain to the inexperienced collector both how they are made and their true scientific value.

FIRE AND SMOKE FROM VOLCANOES IS ILLUSION

Many magazines and story books, as well as newspapers and individuals, refer to the "fire and smoke" belched out of a volcano while in eruption. This shows a complete misconception of the real nature of the phenomenon. Most geologists agree that the explosive force in volcanoes is due to vast amounts of steam shut in under the surface lava, or trying to force its way out through that same lava. In spite of appearances, no open flame and smoke exist in such places. After a terrific explosion far down in the interior of a volcano, this steam and gas is suddenly released through the crater into the outer air carrying great quantities of fine volcanic dust which blackens it and gives it the general appearance of true smoke. At night, instead of fire, the molten magma within the crater lights up this column, or umbrella, of steam and dust, producing what appears like flames when seen from a safe distance.

NEW MINERAL SOCIETY IN DALLAS, TEXAS

Thomas D. Copeland is president of Texas mineral club, organized March 4 at Dallas, Texas. Other officers are Mrs. Viola Block, vice-president; Mrs. A. L. Jarvis, secretary; A. L. Jarvis, treasurer.

Professor Lynch of Arlington, Texas, aided the group in organizing. He showed pictures and gave a talk at the April 2 meeting.

Meetings will be held the first Friday of each month.

IMPERIAL CLUB RESUMES ACTIVITY AFTER RECESS

Imperial Valley gem and mineral society, generally one of the most active societies in California, seems to have broken out with renewed energy after about eight months of enforced vacation, due mostly to war causes. Almost nine-tenths of its formerly active members either are in active government service, or have moved to the coast for war work. The others are at last managing to gather again for monthly meetings, despite rubber and other shortages. March 6 meeting was held at the home of Arthur and Louise Eaton in Holtville for a potluck supper and business meeting. By unanimous vote, Lloyd Richardson, as president, Eva Wilson as secretary, and all other incumbent officers were chosen to carry on until the regular election in October. George Moore furnished the door prize.

COLORFUL MINERALS

RHODONITE

A colorful mineral indeed is rhodonite, (Mn Si O₃), a simple silicate of manganese. Often 6.5 in hardness, and ranging from pink to red in color, it is especially beautiful when streaked and lined with iron black pyrolusite, one of the black dioxides of manganese, or with blackish green amphibole. Formerly considered to be a very rare mineral, it has been found in so many places in the United States in recent years that no collector either amateur or professional need be without generous samples of it. To the amateur gem cutter also, it is the source of supply of a great variety of cabochons and flats.

BRAZIL AS PRODUCER OF EMERALDS IS DEBUNKED

Due to the wide fame of Brazil as a producer of both gems and minerals of various kinds and types, many persons naturally refer to it as the home of the emerald. Many uninformed individuals have incautiously helped to build up this undeserved reputation both by statements and by carelessly made labels. However, the Brazilian school of mines at Ouro Preto, Brazil, has in its museum what is probably the only authentic emerald crystal known to have been found within the bounds of the country. This specimen is a tiny imperfect crystal, weighing less than one carat in the rough.

BRONZITE

Bronzite is a member of the hypersthene group of silicates, which differs from others in the percentage of iron carried by each. It has a surface hardness of 5.5 and a specific gravity of 3.4. Bronzite has a somewhat fibrous or lamellar texture, and when tinted to a rich golden brown color by iron and cut into cabochons across the cleavage it shows a color and chatoyancy resembling chrysoberyl cat's eye.

Minerals That Glow in the Dark...

In offering FLUORESCENT minerals, we make an effort to supply only first quality material with strong fluorescent effects.

CALCIUM-LARSENITE . . .

Good specimens of this material are among the rarest of the fluorescent minerals from Franklin, N. J. It is almost impossible to get and has a bright yellow fluorescent effect under the Quartz lamp. Polished slabs 1x1 in. to 3x4 in. at 35c per sq. in. Very pure, 50c sq. in. Unpolished slabs same sizes at 25c sq. in.

For full listing and prices of our complete stock of Fluorescent materials, refer to pages 40, 41, 42, and 43 in our

SPECIAL FLUORESCENT COLLECTION No. 16-F . . .

Contains the following seven specimens for only \$1.00 plus postage on two pounds: Pure Willemite, Phosphorescent Calcite (Texas), Willemite and Calcite mixture (red and green fluorescence), Autunite, Ohio Fluorite, Synthetic Ruby, and Semi-Opal from Nevada.

1943 JUBILEE CATALOGUE

It contains 100 pages of valuable information. In order to distribute this catalogue to those most interested in receiving it, we are asking you to send us

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Dr. George G. McKhann, secretary of Mineralogical Society of Arizona, gave an unusually thorough discussion of pseudomorphs at the early March meeting. His talk was illustrated with a large number of specimens. March 18 meeting was the first in a series on determinative mineralogy, a subject which was to be continued at the April 1 and April 15 meetings. The club meets each first and third Thursdays, October through April, at the Arizona museum, West Van Buren street at Tenth avenue, Phoenix.

GEM MART

Adv. rate, 5c a word—Minimum \$1.00

WANTED—To purchase showy crystals and specimens suitable for first class trade. Send details. West Coast Mineral Co., Box 331, La Habra, California.

Rock specimens wanted. Will buy small collection of colorful rocks, minerals, crystals, rough, cut, polished. Price must be low, rocks identified. A. Singer, Santa Paula, Calif.

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ROCKHOUNDS—Come and stake your claim as soon as you can. We will not sell any lots until May 1st, then first come first served. Many have asked about building restrictions, there will be none but the understanding is that they must be neat and kept that way. We want a Colony we'll all be proud of. Will be glad to answer any questions. The Colorado Gem Co., Bayfield, Colo.

ANTIQUÉ JEWELRY—Locketts, brooches, chains, rings, etc. 12 assorted, \$3.00. B. Lowe, Box 311, St. Louis, Mo.

AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 1753 Mentone Ave., Pasadena, Calif.

ZIRCONS—OPALS—CAMEOS—3 Genuine diamond cut Zircons (total 2½ carat) \$2.75. Twelve Genuine Opals \$1.50. Twelve Genuine Cameos \$2.50. B. Lowe, Box 311, St. Louis, Mo.

INDIAN RELICS, Beadwork, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons. Catalog 5c. Vernon Lemley, Osborne, Kansas.

100 JEWELRY STONES removed from rings, etc., assorted \$2.00. B. Lowe, Box 311, St. Louis, Mo.

AMONG THE ROCK HUNTERS

Los Angeles lapidary society reports that despite war and transportation difficulties attendance has held up remarkably. Only once during the past year did it drop below 109. DeWitte Hagar, president, wishes to thank publicly the many fine guest speakers who made the meetings so interesting. Monthly dinner meetings are held on the first Monday of each month at the Friday Morning club in downtown Los Angeles.

E. W. Chapman, past president of California federation of mineralogical societies, spoke on building a mineral collection at the March 8 meeting of mineralogical society of Southern California. He used specimens from his own excellent collection to illustrate his talk.

Charles S. Knowlton, program chairman of West Coast mineral society, states that the society will use mineral notes and news, federation bulletin, to inform members of meetings, instead of cards as heretofore.

R. E. Lamberson in East Bay bulletin suggests that the final lapping of obsidian flats be done by hand on glass, using aluminum oxide, thus avoiding fine scratches often left by a metal lap. H. W. Hansen advises against using soap to wash finished stones; use some non-alkaline detergent. W. C. Mathews says prevent grit from working off the lap by lacing a two inch flat fabric pulley belt around the outside.

Death Valley Curly and Frank Livesley have discovered a large deposit of saw or block talc three miles east of the race track, North Panamint, Inyo county, California. This is good carving material.

Mojave mineralogical society has changed meeting nights to Saturday hoping to combine meetings with shopping trips, as most members come from a distance and experience transportation difficulties. Vincent Morgan, president, has talked on agate, physical properties of minerals, and fluorescence at various meetings. Raffles, grab bags and door prizes add to the interest of meetings.

A. L. Harmon was elected president of Kern county society at the annual banquet in March; Ollie Richardson, vice-president; Della Chenard, secretary; John Kennedy, field scout; Beatrice Evinger, editor of Pseudomorph; Dr. M. J. Groesbeck, federation director. Twenty specimens were awarded for displays of minerals, polished and cut material and ornaments.

Tom Defenbaugh, mining man of Humboldt county, Nevada, is reported by the mining press to have found a golden brown topaz as large as a man's fist. The apparently flawless stone comes from the Denio region, Oregon.

Economic mineral map No. 4, on tungsten, is now ready for distribution by division of mines, Ferry Bldg., San Francisco, California.

Hugh A. Matier spoke on Alaska, tomorrow's frontier, at February 12 meeting of Pacific mineral society, Los Angeles. He illustrated his talk with slides made on a recent trip over the Alcan highway. His first trip over the route was made in 1908 with a surveying party.

A scheelite fluorescence analyzer card, government approved, is made available by Ultra-Violet Products, Inc., 5202 Santa Monica Blvd., Los Angeles, California. The card is designed for use with ultra-violet mining lamps. It carries 12 fluorescent checking examples, illustrating 12 molybdenum content graduations from 0 percent to 48 percent. By placing an ore specimen next to the test sample molybdenum content can be easily and quickly estimated within a negligible variation.

Kenneth Garner, secretary of California federation of mineral societies, is stationed in Romulus, Michigan, as a radio mechanic. He recently addressed Michigan mineral society in Detroit on magnesium production in Las Vegas, Nevada.

Mrs. W. Scott Lewis claims the honor of having found mineral specimens on the highest trail in the United States, having discovered malachite and micaceous hematite near the peak of Mt. Whitney, 14,496 feet.

Los Angeles lapidary society announces something which may interest other societies. Dr. O. P. Avery has been appointed official chaplain of the society. The club now has a 7-star service flag, and prayer is offered for its service men and for the country at every meeting.

Los Angeles lapidary society will hold its annual exhibition this year May 15 and 16 at Los Angeles swimming stadium in Exposition park. Admission is free to the public. Hours each day are from 10 a. m. to 9 p. m.

Membership of Mineralogical Society of Arizona reached a total of 58 in April. Among new members is C. I. Andrews, Nogales; Ralph Armstrong, C. W. Davis, Earle E. Sherman, Ralph B. Smith, all of Phoenix.

Pvt. Loren Leger, former geology student at El Centro junior college, donated his rock and Imperial Valley Indian pottery cherd collection to Desert Magazine office. Loren is an army meteorological trainee.

Cogitations . . .

Of a Rockhound
By LOUISE EATON

Our good editor, Randall Henderson, ought to find lots of rocks 'n ideas in his trips all over the globe. If he has any spare time on his hands, how about some specimens, Randall?

Vandals is always vandals, it makes no matter where they are nor what they wears. A uniform can't change a man's heart 'n if he always broke speed laws 'r stole other folks belongings by habit, it'll take more'n clothes to make him quit. If folks makes a practice of huntin' outta season it's not surprisin' if they breaks into prospectors' cabins, starts brush fires 'r destroys landmarks 'n irreplaceable desert memorials.

Sumboddy has made a survey of unfortunate folks who has to be confined in institooshuns becuz they's mentally unbalanced. 'N what do you think they found out? There's not a single rockhound in a asylum anywhere!

Many of the large dog tooth spar crystals of golden calcite from the tri-state area near and around Joplin, Missouri, fail to fluoresce properly under either argon bulbs or cold quartz lights. However, many of them become a beautiful deep red under an inexpensive black bulb.

Howard Fletcher entertained Orange Belt mineralogical society March 4 with a display of fluorescent minerals using both argon and quartz lights. Eighteen members attended despite inclement weather.

Long Beach lapidary group met March 26 at the home of Roy Wagoner, Compton.

March Sequoia bulletin contains a list of names and addresses of 87 members.

Richard H. Jahns of U. S. geological survey, was speaker at the April 9 meeting of Pacific mineral society. He described the beryllium deposits of Iron mountain in New Mexico, a location which promises to rival Crestmore in variety of minerals. In lieu of field trips, Pacific society members take their unknown specimens to meetings and attempt identification. O. U. Besette displayed specimens in the club's cabinet during April.

Cornelius Hurlbut, Jr., past president of Boston mineral club, is doing part time war work. He is supervisor of cutting quartz crystals for a radio corporation.

Members Perkin, Taylor and McPheeters gave talks on barite, fluorite and polished agate respectively for San Fernando valley mineral society at the March 11 meeting held at the Valley Vista Women's club house. Specimens of the minerals discussed were on display, as well as mounted agates. Attendance continues good although field trips have been discontinued for the duration.

Charles Bishop, prospector from the Blythe-Needles area, displayed fluorescent minerals from that district at the April 3 meeting of Imperial Valley gem and mineral society. The group met under the stars at the home of Mr. and Mrs. Lloyd E. Richardson of Holtville.

Dr. Warren F. Fox of Riverside talked about collecting artifacts in the Pueblo Indian country at April 1 meeting of Orange Belt mineralogical society. He displayed interesting pottery and implements excavated in Indian ruins. Fay Hamilton of San Bernardino also described the Haleakala crater and exhibited specimens from the lava flow.

All monthly meetings of Searles Lake gem and mineral society are open to the public.

Pacific mineral society bulletin quotes state news as saying total value of all minerals produced in California in 1942 was \$379,483,000. Petroleum led, with \$228,091,000. Cement, \$36,822,000. Gold \$29,785,000. Strategics and other metalliferous ores, \$12,762,000. Salines, etc., \$14,150,000.

J. M. Finley, principal of Randsburg school was speaker at the April 21 meeting of Searles Lake gem and mineral society.

Orin Purvis told about the Dutch Oven mine at March 12 meeting of Long Beach mineralogical society. Purvis is thoroughly familiar with the territory in which many "lost mines" are supposed to be located, and well versed in their legendary lore.

Plainfield mineralogical society sponsors an eight weeks course in elementary mineralogy and one in crystallography. Dr. A. C. Hawkins, instructor, gives his time gratis as a contribution to the public and to the society.

The Plainfield group has arranged special mineral sales and exchange events to take the place of field trips. "In these days," writes G. R. Stillwell, secretary, "when time is so precious and transportation is not available, it is felt advisable to bring the minerals to the members instead of going after them."

Merle F. Otto, mining engineer, related his collecting experiences at the March 17 meeting of Searles Lake gem and mineral society. Otto is chairman of the field trip committee for the current year. Work on the trail to Indian Joe's is progressing. Frequent trips to the oasis will be made until restoration is complete.

Katherine Fowler Billings lectured on crossing the Caucasus with the Red army in 1937 at April 6 meeting of Boston mineral club. Mrs. Fowler is connected with the department of geology, Tufts college. She is author of "Gold Missus" and "The Woman Prospector in the Sierra Leone." The Boston group scheduled an April field trip to Rockport for danalite and amazon stone or microline. They traveled by train.

Kenneth and Edith McLeod, Klamath Falls, Oregon, report that Universal motion picture company recently shot pictures of their collections, hobbies and activities. The picture is to be released in March. It was tentatively titled "Hobbies That Consumed a Home."

Sequoia mineral society held an interesting meeting April 6 at Parlier high school. Sharon Brady, assisted by Bess McRae gave a contortion performance. Members themselves furnished specimens for a brisk sale of rocks. A box of exchange grabs from Imperial Valley gem and mineral society arrived in time for the April meeting. Dorothy Burell described the Hopi snake dance for the group at their March meeting.

OPEN SPACES

By ORLANDO WEIGHT
Pasadena, California

If the Chuckawalla mountains
Rear their peaks above the sand,
If the jewel laden Black Hills
Zig-zag into No Man's Land,
If you see the Palo Verdes
Where the Colorado flows,
You are in the open spaces
Where the desert lover goes.

You are in a country hallowed
By the deeds of long ago,
Where the coach guard's trusty rifle
Crossed the redskin's supple bow,
As the speeding horses, maddened
By the din of battle, raced
With the stage and precious cargo
Over leagues of desert waste.

You are in the Land of Romance
Where old Pegleg found his gold.
Anyhow, that is the story,
Though in many versions told,
Land where Coronado's children
And the zealous rockhounds rove,
Searching for the vanished Pegleg
Or a hidden jewel trove.

Sequoia study group met in February at the home of Florence and Bert Chapin. Elsie George was assistant hostess. Identification of rocks by hardness was discussed. March meeting was held at the home of Pearl and Elmer Eldridge. Isabel Westcott discussed streak as a means of identification of minerals.

Dora Andersen, past president and active member of Sequoia mineral society, has joined the WAACS. She was sworn in March 9, but will continue her school duties until the end of the semester.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

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Black Wood
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Palm Wood
Moss Agate
Cinnabar Opalite

Jet
Red Hematite
Sodalite
Dumortierite
Rhodonite
California Bloodstone
White Jade (Siam)
Brazilian Agate
Belgian Chert
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AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting and polishing equipment. Leland Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connections with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, California.

By LELANDE QUICK

Many people have asked me, and I have long wondered myself, how the Chinese achieve their marvelous glyptic results with jade, carnelian and other gem materials. In response to an appeal for source information on the subject in February Desert Magazine, I received, among other helps, a transcribed section of Dr. Stephen Bushell's authoritative work on Chinese art. This was sent to me by Alice Walters of Ramona, California, to whom I am properly grateful. I have since read the two volumes of this work with intense enjoyment.

Dr. Bushell's work is an entrancing thesis on all branches of Chinese art, profusely illustrated with the examples that existed at the time (1903) in the British Museum. It contains exhaustive information on the ceramic art, textiles and painting but only a few pages on lapidary procedure. At that time the lapidary's tools were crude and foot-powered with a treadle. They are no different today for I have been told that in all of China there does not exist even one diamond saw and probably no more than a half dozen lapidaries possess an electric motor. This is not because the Chinese lapidary is unwilling to adopt modern methods but because the gem cutters and electricity are seldom at the same location.

After all, the gem cutting tools that we have today are no different from those we had many centuries ago but electric power has made them faster. It is the biting power of abrasives that accomplishes the work and the Chinese lapidary prepares his own abrasives. He makes and uses four kinds: "yellow sand" from quartz crystals, "red sand" from garnets (used as a paste on circular disk saws similar to our mud saws), "black sand," a kind of emery, used on the lap wheels and "jewel dust" or crushed ruby crystals from Yunnan and Tibet, always used on the leather wheel for the final polish. A Chinese will spend weeks preparing his abrasive with crude grinding and sifting apparatus and then spend months at a foot treadle grinding slowly so that his hands are free for the glyptic work. It will take several months to produce a fine piece but he produces something more deathless than the pyramids.

A rough block of jade is first "skinned" by two men working a toothless four-handed saw with applied abrasive paste. Then it is rough-shaped by various sized iron disks and rings and the saw marks are removed by polishing wheels set on a wooden spindle. The lapidary then studies his material for the best ultimate design which he carries in his memory like a Navajo rug weaver. With a string bow, similar to that a Boy Scout uses to build a fire without matches, he works a drill until he bores a hole through the material. A heavy stone rests on top of the diamond drill for pressure.

Sometimes the jade is fastened to a boat floating in a bamboo tub of water and the bow is worked as before with the left hand regulating the pressure. After the hole is bored a wire is passed through it, attached to a bow, charged with the red and yellow sand and the cutter proceeds to cut an open fret work design. Vases are hollowed by boring a hole with a drill tube, gouging out the material and boring with a larger drill, etc., until the required width and depth is attained.

The final polish is accomplished by a vast series of wooden wheels, gourd skins and ox leather charged with the ruby dust paste. There are many wooden plugs and cylinders and fine

points made of the rind of the bottle gourd. These are attached to the wooden spindle and can search out the deepest interstices of the carved work. The artist goes over his work countless times to achieve the fluency of line and the delusive softness of a perfect piece. In all of this there are two intangible ingredients used, possessed by the Chinese lapidary alone—a unique imagination and a boundless patience.

• • •

When the second exhibition of the Los Angeles Lapidary society was held last year it was remarked by many how great an improvement had been made in the quality of the work and in the imagination and originality indicated in the pieces shown when compared with the first exhibition. Those who studied the displays at the two exhibitions could discern the evolution of a group of enthusiastic rockhounds into a group of serious gem cutters. With field trips abandoned during the past year there has been further amazing progress and some members are even cutting creditable cameos.

This year's show should therefore be the outstanding event of its kind. It will be held in the Los Angeles swimming stadium building in Exposition park, Los Angeles, on Saturday and Sunday, May 15 and 16. The admission will be free to everyone at all hours and it will be open from 10 a. m. until 9 p. m. each day. As usual there will be no commercial activity of any kind and nothing will be for sale.

The great majority of the 150 members are expected to exhibit in each of two classes. The first class will be a general display of all their good work of past years with ribbons awarded based on quality and showmanship but not on quantity. The second class will include trays of each member's best gems to be exhibited solely on the basis of quality. Under this arrangement it is expected that more than 25,000 items will be displayed. (There were more than 12,000 exhibited last year in a space one third as large.) This will no doubt be the largest display of gems ever held anywhere under one roof. I hope to see many of my Desert Magazine friends there and I hope you will register in my guest book.

In addition to the judging by experts not connected with the society each person attending will be permitted to be a judge. Each registered guest will be handed a ballot on which he can indicate the things that appealed to him the most. The popular choice of the public will be announced in the July issue of Desert Magazine in Arthur Eaton's department, as well as the various prize winners.

• • •

DID YOU KNOW . . .

- Synthetic white sapphires in quantity will be available after the war.
- Turquoise is supposed to be a lucky stone only when received as a gift. Do you remember what Shylock said when his daughter took his turquoise? He said, "I would not have given it for a wilderness of monkeys." I never appreciated that phrase until recently.
- The birthstones for every month except May and July (emerald and ruby respectively) are found in California.

THE DESERT MAGAZINE

Mines and Mining . .

Bishop, California . . .

One of the most important tungsten strikes yet uncovered in this area was made recently by the Tungstar company on its property in the Pine Creek district, reports the Inyo Register. At a 200-foot depth an extensive ore body was encountered, with values running three percent scheelite. The ore body has been opened 85 feet and shows a width of 25 feet. Groundwork has been started on a government housing project for mine workers. Twelve buildings with 48 units will be erected in Bishop, and buildings containing 130 housekeeping units will be located on Pine Creek.

Kingman, Arizona . . .

Completion of plans to drive a tunnel through the Cerbat mountains 14 miles north of here to develop, mine and transport ore from mine to mill is expected to be announced shortly. The proposed project would involve \$2,300,000. It is said capitalists of Washington, D. C., and Delaware are studying the plans, which have received favorable reports from engineers who recently have visited the district.

Albuquerque, New Mexico . . .

Sale of San Pedro Mines by John J. Raskob to Dexter Hunter of New York has been disclosed here. The copper property involves 12 mining claims, the monthly tonnage from which is expected to reach 5,000. C. L. Bradbury of this city, former general manager, will retain his position. Hunter, former executive with British Dyes, Inc., now making ammunition, is on leave from Cluett-Peabody and company, makers of Arrow shirts, now turning out Army shirts. He is in partnership with the Chicago First National bank in the mine deal.

Winnemucca, Nevada . . .

A branch office of the bureau of mines has been opened here with Engineer M. C. Smith in charge. The office was located here to extend every possible government aid to the mineral development of this district, said Mr. Smith.

Lovelock, Nevada . . .

Knapp Engineering company has started work on a 250-ton flotation plant located at Toulon for the Rare Metals corporation. Into the mill, when completed, will be fed 50,000 tons of accumulated tailings from the 100-ton concentration plant at Toulon, derived from Oreana Little Tungsten ore. In addition, the tailings from newly run ore from the old plant will be conveyed into the new mill for flotation treatment.

Indio, California . . .

Although the government has approved allocation of necessary materials for building a branch line to Iron mountain 65 miles northeast of Indio according to local representatives of the Southern Pacific, there seems to be no immediate prospects of the road being built. In a letter to "The Date Palm," Henry J. Kaiser, Jr., manager of the iron and steel division of the Kaiser company, states, "We do not own the Iron mountain deposit, nor any of the land nearby, and we are not considering building a railroad at this location, inasmuch as we are not using this deposit at present."

Salt Lake City, Utah . . .

Utah Magnesium company has been incorporated to develop minerals and other deposits near Thompsons, Utah. The company is capitalized at \$100,000, all assets being represented by property in Utah. Its home office will be at Reno, Nevada. John Sandburg is president of board of directors.

Las Vegas, Nevada . . .

With the first refinery unit going into operation, Basic Magnesium, Inc., reached the point of 50 percent production in March, it was announced.

Tucson, Arizona . . .

As a result of intensive search for war materials in Arizona, a survey is being made by U. S. geological survey of an exceptionally large high-grade iron ore deposit at the Planet mine 30 miles north of Bouse. According to J. H. Hedges, director of Arizona mines bureau, the mine had been worked for its copper but now is discovered to be an exceptional iron ore property.

Cima, California . . .

Preparations were reported underway late in March for immediate construction of a 50-ton tin concentrator at Evening Star tin property 10 miles north of here in San Bernardino county. The property, operated by Steel Service and Sales mines of Chicago, reportedly shipped 25 tons of tin ore to a government concentrator at Texas City, Texas.

Gallup, New Mexico . . .

Annual production of coal mines on the Navajo reservation now averages 40,000 tons, according to Dan King of Window Rock, who supervises the 33 mines now being operated. Of the total, 12 are operated by the Navajo service, the others being individually owned. Almost the entire output is consumed on the reservation.

Phoenix, Arizona . . .

Oil leases on more than 100,000 acres in Apache county have been signed, O. C. Williams, state land commissioner, announced in March. Williams said he had been assured by officials of the two Standard Oil company subsidiaries who negotiated the leases that oil drilling would start immediately.

Salt Lake City, Utah . . .

Utah coal production for 1942 was 43 percent greater than the previous year, a total of 5,000,000 tons. The national increase was 13 percent. Said B. P. Manley, executive secretary of Utah coal operators association, "The greater 1943 demand can only be met by the employment of more men, longer hours and the use of more machinery."

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Tucson, Arizona



By RANDALL HENDERSON

SOMEWHERE IN AFRICA—Not many miles from my barracks there is dense African jungle where bananas grow wild and monkeys and parrots are seen in the trees. But the sounds that drift through the flimsy partition which separates my office from one of the camp recreation rooms at this army air base are much the same as would be heard in the day room or USO at any army camp in America.

The phonograph is playing. It plays almost continuously from 8 a. m. to 10 p. m. The assortment of records is very limited and I know some of them so well I could sing them in my sleep—if I could sing. There is the incessant click of ping pong balls. It is a popular game with the soldiers.

But the phonograph and ping pong and the chatter of men off duty is never annoying. My assignment at this station is mainly with morale, and the more games and music there are, the better I am doing my job. They give me the same satisfaction as when I sit in the office at home and hear the presses humming in the back shop.

I would prefer duty on the line to my present administrative job. But there is a current superstition that young men make better fighters than gray-haired soldiers. And so I am managing an outdoor theater, a library, a bathing beach, an orchestra, a baseball league, volleyball and tennis courts, a half dozen recreation halls, and a mail order school for men who entered the army before their education was completed. It is an interesting assignment—doubly so because our source of supplies is thousands of miles away and we have to do considerable improvising.

* * *

The bush and jungle country has no less fascination than the desert—and I spend as many of my recreation hours as possible outside the camp, following native jungle trails that usually lead to little settlements of stick-in-the-mud huts with grass roofs. These natives are a never-ending source of interest and wonder.

Last Sunday at mess we had table cloths and napkins for the first time—white ones at that. It was quite an event, and one of the officers, in mock ignorance, held up his napkin and exclaimed, "What this for?" The barefoot native boy waiting on the table stepped up behind him—and not to embarrass him—whispered in his ear, "They for wipe mouth, hands, mastah."

That simple-hearted lad never has worn shoes. His grandfather was a savage wearing a G-string. He would be barred from white society in America. But for all that, he has the heart of a gentleman. When it comes to the fundamental virtues, I have failed to discern any great difference between these dark-skinned Africans and the members of the great white tribes who are now engaged in shooting holes in each other on most of the continents of this earth. On the average they have just as much honesty, courage, generosity, humility, loyalty and tolerance as my breed of humans—and much less of greed and a great deal more faith than most of us.

Perhaps some of the above words will rile certain of my haughty friends in the old home town. But that is all right with me. My interest in this world conflict is not merely that the

axis may be crushed—but that out of the bitterness of these war days there may emerge more of tolerance and less of selfishness. For therein lies the real cause of war and the real answer to the problem of peace.

* * *

This is the native habitat of wild cannas, cashew nuts (they also grow in India and other places) and mahogany trees. The mahoganies are majestic. I am afraid if I lived in Africa I would make myself very unpopular by starting a Save-the-Mahogany-Forests League. Unpopular because these trees are the main source of wood for building purposes here. The backstop at the baseball diamond and the benches in the outdoor theater are of mahogany. I work at a mahogany desk because it costs less than a pine desk in this part of the world.

I've found the answer for these African cacti which were puzzling me. They were imported originally from America, and thrive in this tropical zone. I believe I know the location they were brought from. I suspect these barefoot natives wish they were all back in Arizona where they belong.

* * *

Yes, there is a war going on over here. But it isn't good form for a soldier to write home about the details. And anyway, I promised Desert Magazine readers before I left that this page would not become too military. One thing I am sure I have in common with the desert clan at home—we are all dreaming of the day when we again may follow winding desert trails and cook our flapjacks over an ironwood fire.

Speaking of flapjacks, we have them for breakfast three or four times a week—good American flapjacks just like I have eaten many a morning far out on the trail with Desert Steve Ragsdale. But thank heaven we do not have to drink Steve's coffee—you know I told one time about Steve's recipe: one cup of ground coffee beans to one cup of water, boil together 45 minutes. Most of the time we have butter on the table, and when it is missing there is always peanut butter. They grow peanuts here by the shipload, and I have learned to like it on my bread about as well as dairy butter.

There are few cows in this part of Africa, and I haven't tasted fresh milk since I came here, but canned milk goes very well with bananas, and we have bananas three times a day if we want them. I didn't think much of this dehydrated cabbage at first but I have learned to like it. And I would rather eat dehydrated string beans than fresh ones.

* * *

Only thing I hold against these native Africans is that they never have devised a simple efficient method for getting at the meat of a coconut. You would think that in a land where coconuts are as plentiful as they are here, and as important a part of the menu, some one would have discovered a way to get the meat out without using a sledge hammer. But it is still done by the strong-arm method. I heard a story the other day about a soldier who attempted to solve the problem by using his bayonet. He landed in the hospital. There's a fortune awaiting the genius who will breed a soft-shelled coconut.

LETTERS...

Campfire Dreams in England...

USAAF, England

Dear Mr. Henderson:

On many of your trips into the remote corners of the desert, you no doubt have sat with a small group of men around a flickering campfire, staring contentedly into its white-hot depths and conversing on the subject of desert place names, some previous experience or perhaps a biological discovery.

Tonight, nearly 6,000 miles from that memorable spot, in an entirely different setting, four desert inhabitants are gathered on Ye Olde Bunk in the same manner as you have around that fire, relating stories of our explorations and desires for the future, and cautiously fingering through dog-eared editions of Desert, our prize possession. This gathering has become a nightly occurrence, and we feel it would not be a success without the presence of your splendid magazine.

CPL. JOHN E. FARMER

Monument Valley by Air...

War Eagle Field
Lancaster, California

Dear Sir:

Your landmark picture in the March issue reminds me of the summer of 1939 when my wife, some friends and a barnstorming pilot flew the second and third airplanes into Monument valley.

We had flown over and around this beautiful and weird land many times never thinking of visiting the place, not realizing the magnificent and astounding beauty of the land. Being natives of Colorado and used to scenic grandeur we did not think we would be interested in a few odd shaped rocks.

We left the small town of Cortez, Colorado, at sun-up and flying over the Ute mountain due west, gaining altitude we could view the monuments from a great distance, the sun bringing out the color and shapes of these huge structures. Before arriving at the trading post landing field we flew directly over the Natural Bridges monument, the Arches monument and Mexican Hat rock. In 50 minutes we had landed among these enchanting formations.

If you look back in Desert Magazine, color supplement of the May, 1941, issue, you will find a picture of an airplane surrounded by Indians—the ship bearing the identification number NC-4933 on the wing. This is the plane in which we visited Monument valley, and the photo was taken on arrival at the trading post.

CARL V. DARNALL
Squadron Commander



Desert's editor Lt. Randall Henderson, right, with his brother Colonel Cliff Henderson, "somewhere in Africa."

Desert Refuge Welcomed Overseas

H. Q. 1st Canadian Army, Overseas
Dear Marshal, Tanya, Rider, Rudyard,
Victoria:

Thanks for the spirit of the desert which you send me every month in your writings in Desert Magazine—there is nothing I look forward to as much as my copy of that grand paper and most of all the letter (for that's what it is) from you.

How I long for the smell of a mesquite fire. It is nearly three years since I left, and that is a long time for a desert rat to be away from the sagebrush. What a contrast between the Mojave desert and a country which has been blitzed—and still is to a lesser degree. I only hope the time will come when I can get back and forget the past, and meet you face to face.

CAPT. H. LASCOMBE

"The Next Best Thing"...

Stockton, California

Dear Sirs:

I am enclosing my check for \$2.00 to cover cost of Book One and Book Two of the back issues of Desert Magazine, as quoted in your April issue. I am certainly jumping at a chance to get these early numbers to add to my collection.

The type of material you print is timeless in character, and like a classic of literature, is as good today or tomorrow as when it was written. It's not quite as good as an actual trip to the desert—but it's certainly the next thing to it!

D. C. MORGENSON

Relay to the Editor...

Glendale, California

Gentlemen and Ladies:

Next time you write our patron saint Randall Henderson, just let him know that one of his old subscribers is thankful that he could, through delegated authority, carry on the publication of the magazine which, under present travel restrictions, takes a place of increased interest and importance to us who remain at home. The recently published articles constitute the plans for the future—where we are going, what we are going to do—after the war and I do mean we will make the necessary sacrifices and efforts NOW to effect the realization of those plans LATER. Indeed the Desert Magazine IS a morale builder!

ROBERT R. ORR

Wants to Save Navajo Saddle...

Avis, Pennsylvania

My Dear Miss Harris:

In the March issue we read under the heading "Navajo Fond of Saddle" of the Indian boy, Frank Belin of Klagetoh, Arizona, now in north Africa, who is eager to have the Kirk Trading post save his saddle for him until he gets home from the war.

It comes to me that his saddle should not only be saved but paid for when he returns. We would like to be the first to contribute if a fund could be started for this purpose.

MRS. CARRIE L. HAGER

"Things I Liked"...

Inyokern, California

Dear Desert Magazine:

I was thrilled over Margaret Stone's Pahute article in the April issue, as I know and admire Nevada's Pahute Indians.

And as the daughter of a country editor I enjoyed "Meet Chalfant of Inyo." Also liked Leland Quick's Virgin Valley article, as it's so near my old stamping grounds and I've seen so many gorgeous opals from there.

Another article I enjoyed was Richard Van Valkenburgh's "Spanish Inscription," since I explored the country around Winslow and Holbrook in October and November, 1942.

MRS. BEN HICKS

American Exiled in Florida...

Boca Raton Field, Florida

Dear Sirs:

Today was a happy day when I received my Desert Magazine upon request from home. I've been in Florida about a month in the Army Air Forces preparing for meteorology training. Just before leaving I had my last trip to the Mojave desert. My favorite spot is above Barstow near the path of the old mono-rail.

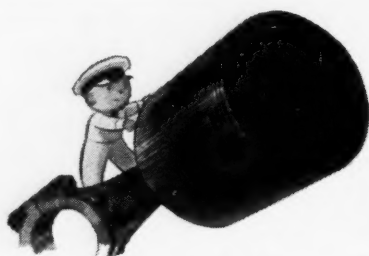
As I'm a member of the AEF (Americans Exiled in Florida) I can't find DMs down here.

A/C ROBERT GREENAWALT

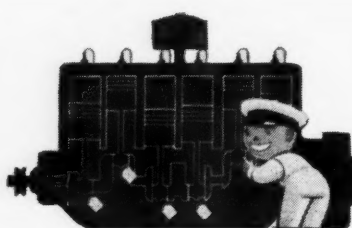
A dirty oil filter can wreck your motor!



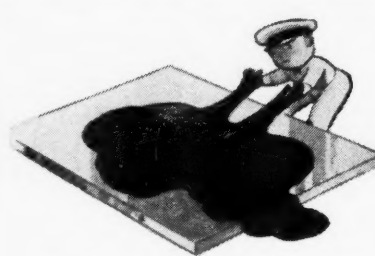
When your oil filter gets clogged up, it no longer *protects* your oil. Here's what happens:



1 Your oil picks up flinty carbon particles which act like sand in your motor. It isn't long before cylinder walls, pistons, etc. are deeply scratched and scored.



2 Your oil gets thick and heavy. Driving on "sludgy" oil gradually wears down vital parts and may ultimately cause burned out bearings and other breakdowns.



3 Your oil gets sticky. Dirty oil develops what mechanics call "oil varnish" which causes valves to stick and your motor to miss fire and waste gasoline. Sooner or later, you have a repair bill to pay.



4 Keep your oil clean. Change your motor oil at least every thousand miles. But *still more important*, be sure that fresh oil gets a chance to *stay fresh*. Replace your old oil filter cartridge with a brand new one.



5 The AC filter element is especially recommended for low-speed Victory driving. It operates efficiently at low oil pressures. Made of special process fibre in a metal cylinder, it quickly removes impurities, restoring oil to its original cleanness.

Let us check your filter cartridge today! If necessary, we will replace with

NEW AC MODERN FILTER CARTRIDGE

\$1.00 to \$1.50 FOR PRACTICALLY ALL TYPES OF CARS

Take this simple precaution. Keep your car rolling!

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